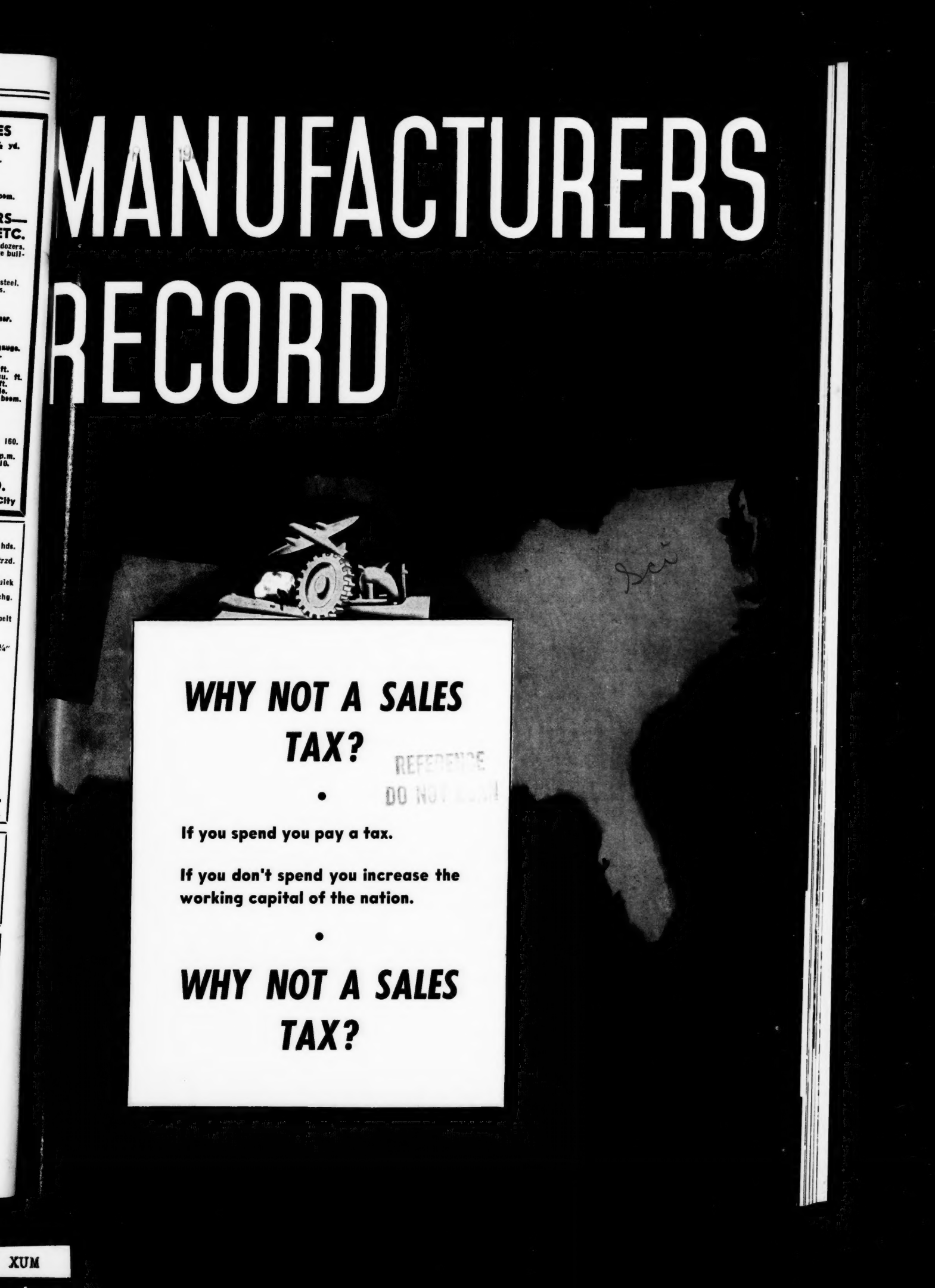
MANUFACTURERS RECORD



Portion of new defense plant which is covered with over 1,000,000 sq. ft. of *Featherweight* Precast Concrete Roof Slabs. Architect, Albert Kahn, Inc., General Contractor, Thorgerson & Erickson Co.

Let's Look Beyond . . .

The slabs are quickly laid directly on the steel roof purlins, in any weather. Occupant can get under cover fast and into production at once.

DEFENSE WORK is the order of the day. Our entire effort is now bent toward that end . . . but when that work is done, all of us will again be building and re-building for the future.

Meanwhile, it is our desire to maintain uninterrupted contact with you and the host of other valued friends that Federal Roofs have made during the past 35 years.

Yes, Federal served also in World War I, and the permanent fireproof, no-maintenance roof decks we provided at that time for scores of industrial plants, are still going strong. They have continued to protect peace-time industry faithfully and now again are in service on emergency production, as fit for the job as ever.

That is but one of the many advantages of a Federal Roof—it represents a true investment in *permanence*—reaches way out into the future to bring *added* returns on that investment.

Prompt Service From Our BIRMINGHAM, ALA. Plant

Featherweight PRECAST CONCRETE ROOF DECK

Ensure These Advantages

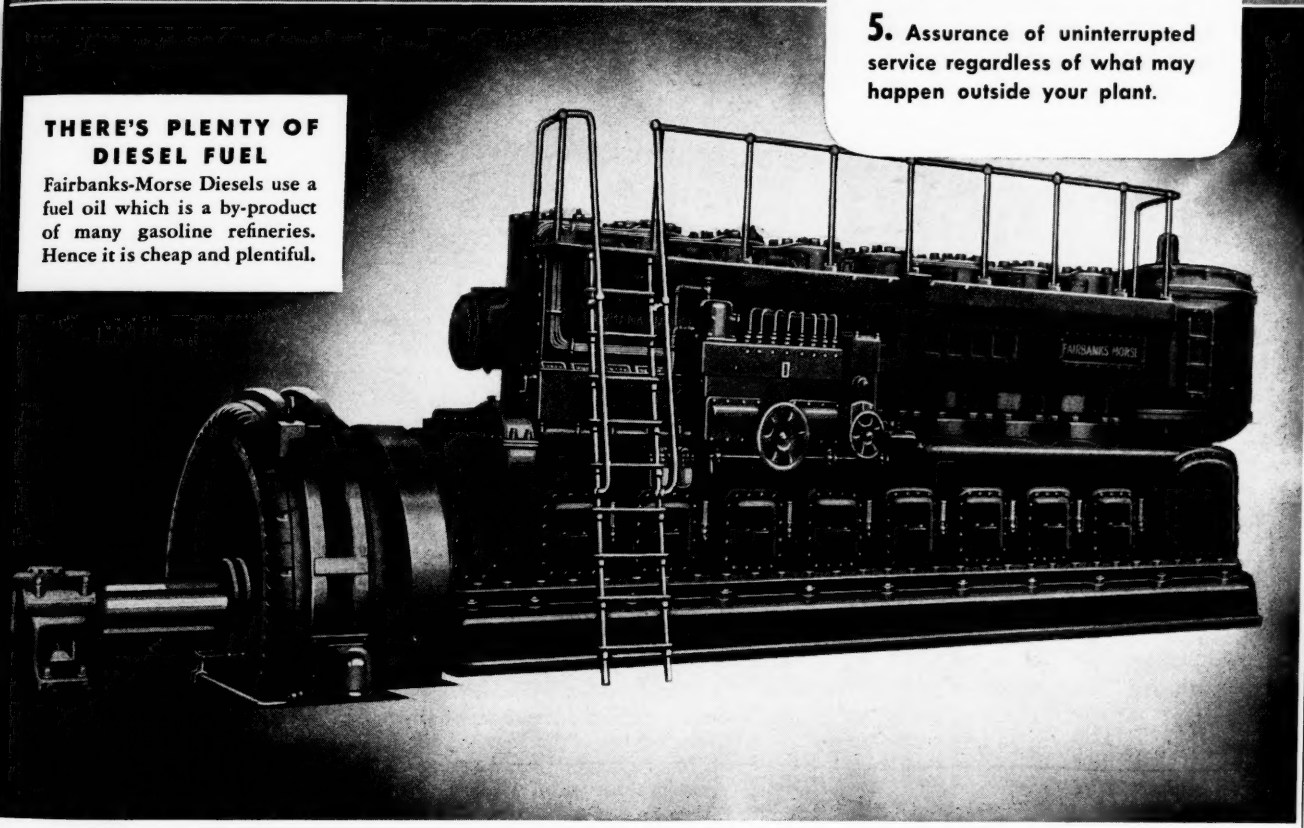
WHEN YOU ARRANGE FOR

EXTRA POWER!

1. Freedom from peak penalties and demand charges.
2. Ability to give dependable stand-by service at low cost.
3. Provision for off-standard types of current which certain special equipment may demand.
4. Low unit power cost under varying demands.
5. Assurance of uninterrupted service regardless of what may happen outside your plant.

THERE'S PLENTY OF DIESEL FUEL

Fairbanks-Morse Diesels use a fuel oil which is a by-product of many gasoline refineries. Hence it is cheap and plentiful.



IT TAKES Diesel-driven generators, right in your own plant, to give you those five important advantages.

But just any Diesels won't do. You won't gain all those advantages except with Diesels built for low maintenance cost as well as low fuel cost . . . engines with the stamina to stand up under sustained, heavy-duty service.

That's how Fairbanks-Morse low-speed, two-cycle, heavy-duty Diesels are built, and operating records prove it—in hundreds of industrial and municipal power plants.

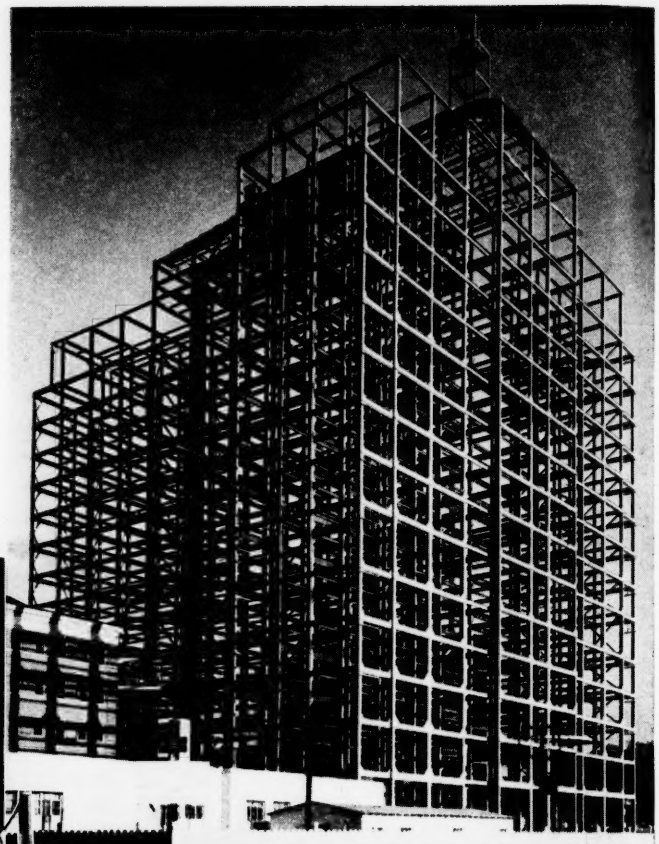
If you need more power, have an F-M power engineer study your needs and submit recommendations. No cost, no obligation. Simply write Fairbanks, Morse & Co., Dept. D93, 600 S. Michigan Ave., Chicago, Ill. Branches and service stations throughout the United States and Canada.

FAIRBANKS·MORSE DIESELS

DIESEL ENGINES ELECTRICAL MACHINERY MAGNETOS RAILROAD EQUIPMENT WASHERS-IRONERS STOKERS
PUMPS MOTORS FAIRBANKS SCALES WATER SYSTEMS FARM EQUIPMENT AIR CONDITIONERS

STRONGER CONSTRUCTION GOING UP!

One of the South's most beautiful multiple-story buildings, Birmingham's Jefferson County Hospital is the last word in modern hospital construction. All steel, including structural members, bins and stacks, was furnished by Ingalls—the country's largest independent fabricator. Our Engineering and Erection Departments stand ready to serve consulting firms and contractors on any project, anywhere in the nation.



100% WELDED: TO CARRY LARGER CARGOES FASTER!

The unchallenged advantages of all-welded hull construction make the Ingalls-built S.S. MORMACTIDE a thoroughbred among deep-sea cargo vessels. Absence of rivets and overlapping plates removes useless dead weight, and results in true streamlined performance . . . 100% welded ship construction—pioneered and employed exclusively at Ingalls shipyards—produces lighter, stronger vessels of easier maneuverability and reduced operating and maintenance costs.

THE INGALLS IRON WORKS COMPANY

BIRMINGHAM, ALABAMA

Subsidiary Companies and Divisions

THE STEEL CONSTRUCTION COMPANY • THE INGALLS SHIPBUILDING CORPORATION • BIRMINGHAM TANK COMPANY

Shipyards PASCAGOULA, MISSISSIPPI • DECATUR, ALABAMA

Branch Offices NEW YORK • PITTSBURGH • ATLANTA • NEW ORLEANS

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APRIL, 1942
Volume 111, Number 4

EDITORIALS

FEATURE ARTICLES

DEPARTMENTS

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

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Member A. B. C.

Entered as second class matter at the postoffice, Baltimore, Md., U.S.A., under act of March 3, 1879. Volume 111, Number 4 Monthly

As the Editor Sees It

Friends of R. Lisle Gould, Secretary and Treasurer of the MANUFACTURERS RECORD will join with those of us who see him daily in our congratulations to him on his acceptance of a more important position. As this issue goes to press Mr. Gould is reporting for active flying duty as 1st Lieutenant in the regular army air corps. Only his modesty prevents us from saying more.

We wish to call attention to the fact that the leading editorial of this issue of the MANUFACTURERS RECORD is not written by a member of our staff. Mr. H. R. Pinckard needs no introduction to newspaper men anywhere.

Lead or get out of the way is the substance of Mr. Pinckard's message. We have an army and a navy ready to give their all that victory may be secured and the American people will endure any sacrifice necessary for their support. But there is no longer national tolerance for governmental experiment. The people mean business and that means winning this war. We think you will like Mr. Pinckards editorial. We did.

So many caustic remarks and comments have passed through our ears and over our desk about the behavior of our federal government in relation to the conduct of the war that it is a distinct relief for us to be able to print a letter from a 21 year old boy whose father saw active service in the last war. We hope this letter will inspire every reader to demand the governmental leadership that is our due.

March 22

Hello Fella's

Well believe it or not I am now a teacher, after attending school for 3 weeks my name was posted on the bulletin board making me an official instructor on the Garand M1 Automatic Rifle. Our classes are to start Monday morning and there will be 9 other instructors besides myself. We are supposed to teach 6 classes a day and each class will consist of about 60 men. We will give instructions for 300 hours and I guess by that time I'll be teaching in my sleep. I am not sure, but I think I will get a set of "Tech stripes" for this and if I do I'll collect $54.00 a month and rate the same as a corporal.

Last Sunday we received our rookies and we have been teaching them to drill for the past week, most of us old fellows can hardly talk from shouting commands all week at the rookies. Beginning Monday the rookies will drill with their rifles and before the week is over there will be plenty of busted heads.

Tonight I go on Guard Duty again and this is one job I hate almost as much as K.P.

Yesterday I was in the Army for four months, and in this time the only change it has made in me has been my weight. Last Friday while I was in Santa Maria I got on a scale and the thing read 149, when I entered the

Army my weight was 128 pounds, the only thing is that I can't find where all this weight is going on me.

This is Sunday and I have just finished sewing some division insignias on my clothes and I did a pretty good job of it. If any of you fellows want to learn to be a good wife all you have to do is to join the Army. Since I've been in here I've learned to wash dishes, windows, floors and clothes not to mention the art of sewing, you should see the job I did on a pair socks, it would knock your eyes out.

Today my outfit is the "alert battalion" and everytime but once when we have been "alert battalion" something has happened. The first time it was the shelling of Santa Barbara and the next time we had a blackout, because of the planes over Los Angeles, but I sure hope nothing happens tonight. I sure hate to jump out of bed in the middle of the night.

I don't guess you know it yet, but I am with the best outfit in the Army. First of all I am an engineer, that makes us about the roughest and toughest, then second I am serving with an Armored Division so that makes the 22nd Engrs. about the best in the Army, anyway that is how we feel even if we are a new outfit. Maybe before this is all over this outfit will make good its boast, at least we will make a damn good effort.

This will be all for now so I had better stop before I think of something else.

Sincerely,
HEN RITTER, JR.

P. S. Mel, I received your letter and intend to answer soon.

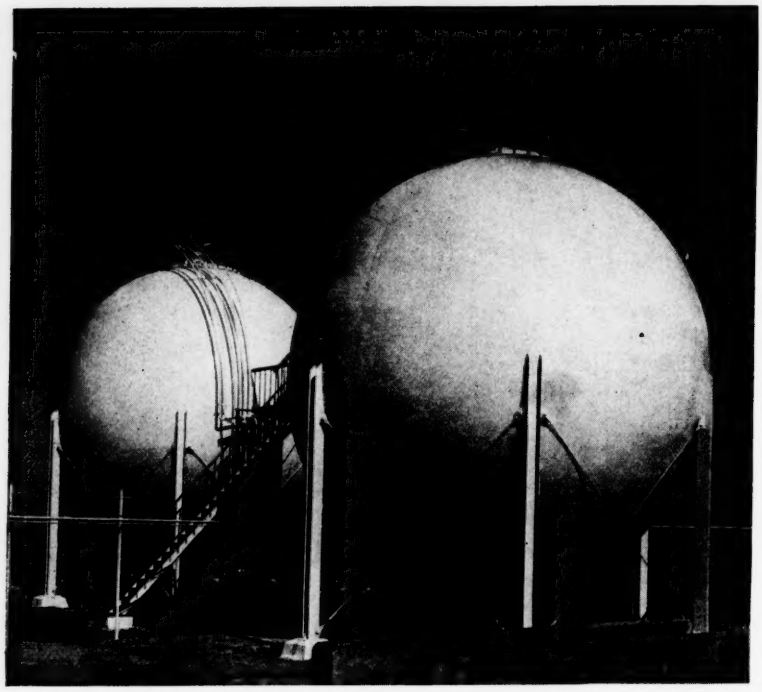
Lest we be accused of fifth, sixth, seventh etc. columning in the criticism that our pages contain it is only fair to the readers of the MANUFACTURERS RECORD and to ourselves that all should know that we are not only expressing our own thoughts but reflecting the opinions of the people who talk with and write to us.

We do not want to criticize our government. We want to help our government rise above petty considerations and really lead our nation. We are no longer farmers, laborers, business or professional men. We are no longer southerners, northerners, westerners. We are above all else Americans and we are thinking as such. It is time that our present political representatives at least reflect their public if they can not lead it.

The time is not far distant when the American public will demand and by its voice at the polls, will secure leaders. The handwriting is on the wall for all Washington to see.

Why don't we hear more about the 12 million bale surplus of cotton? We hear of a wool shortage and of a rubber shortage. Silk, rayon and other products or raw materials seem grist to the political propaganda boy's mill. Their jobs seems to be to arouse a public that is properly trying to keep calm and determined and useful.

Let's educate the people to use the products that are available. Cotton is one of them.



Hortonspheres like these can be used to store butane and butadiene. They are 30¼ ft. in diameter and hold 2,500 bbls. each.

HORTONSPHERES provide economical means of storing BUTADIENE—principal ingredient of synthetic rubber

Butadiene is one of the principal ingredients used in making synthetic rubber. It is obtained from two principal sources, butane and fuel oil.

Butane and butadiene are volatile liquids. They must be handled and stored in tanks operating at 60 to 80 lbs. per sq. in. pressure to prevent excessive evaporation losses.

The urgent demand for large amounts of synthetic rubber will require the installation of suitable storage facilities immediately. Hortonspheres provide an economical means of meeting this need. They are built in relatively large standard capacities — 1,000 to 20,000-bbls.—for 20 to 100 lbs. per sq. in. pressure. These large capacities reduce the cost per bbl. of storage, cut down the number of piping connections, fittings and valves, and occupy less area than multiples of smaller units.

Hortonspheres prevent filling and emptying losses (after the first filling) as well as standing storage losses. As the contents are withdrawn, sufficient liquid vaporizes to keep the sphere filled and prevents air from being drawn in at the vents. As the sphere is filled, this vapor recondenses. No vapor is vented out of the tank and lost.

We build Hortonspheroids for the storage of volatile liquids, such as natural gasoline, requiring lower pressures and cylindrical vessels for higher pressures.

HORTONSPHERES—Built in capacities of 1,000 to 20,000 bbls. to store volatile liquids under 20 to 100 or more lbs. per sq. in. pressure. Also from 20 to 65 ft. in diam. to store gases under 20 to 100 or more lbs. per sq. in. pressure.

HORTONSPHEROIDS—Smooth spheroids built in capacities of 2,500 to 40,000 bbls. to store volatile liquids under pressures up to 35 lbs. per sq. in. Noded spheroids built in capacities of 20,000 to 120,000 bbls. for 2½ to 20 lbs. per sq. in. Bulletin entitled *The Hortonspheroid* contains general information on both types.

HEMISPHEROIDS—Built in capacities up to 20,000 bbls. for storing liquids at low pressures.

PRESSURE VESSELS—Refinery towers or plain pressure vessels built at Birmingham to Paragraph U-68 of ASME Code with joints x-rayed and stress-relieved and Paragraph U-69 or API-ASME vessels at other plants.

WIGGINS PONTOON ROOFS—Installed on new or existing oil tanks. Ride directly on surface of liquid in tank. Used to reduce fire hazard and evaporation loss on working tanks. Bulletin entitled *The Wiggins Pontoon Roof* contains complete details.

WIGGINS BREATHER ROOFS— Prevent evaporation loss from standing oil storage tanks kept full or nearly full. Installed on new or existing tanks. Recommended for 60 ft. diam. or larger. Bulletin describes construction and operation.

WIGGINS BALLOON ROOFS—Flexible roof like Breather except with greater capacity. Used for smaller sizes, slow working tanks and to connect to other tanks. Complete description in bulletin entitled *Wiggins Breather Roof and Wiggins Balloon Roof.*

ELEVATED STEEL TANKS — Provide gravity water pressure for general service or fire protection. Bulletin entitled *Fire Protection* contains general data and tables of standard capacities from 5,000 to 500,000 gals. for ellipsoidal-bottom and hemispherical-bottom types. Bulletin entitled *Radial-cone Bottom Elevated Water Tanks* contains illustrations of tubular and structural column radial-cone tanks in large capacities. This design used for capacities of 500,000 to 2,000,000 gals. for municipal service with 25 to 35 ft. range in head.

STORAGE TANKS— Flat-bottom tanks with cone or special roofs for the storage of oil, water or other liquids. *Technical Bulletin Number 11* contains complete table of standard barrel capacities for oil tanks, standard gallon capacities for water tanks and A.P.I. designs.

STEEL PIPE— Welded steel pipe 36-in. diam. or larger in standard lengths up to 60 ft. Penstocks, hydraulic pipe lines and tunnel liners built to special designs.

SURGE TANKS — Johnson differential surge tanks, described in booklet sent on request, or simple surge tanks.

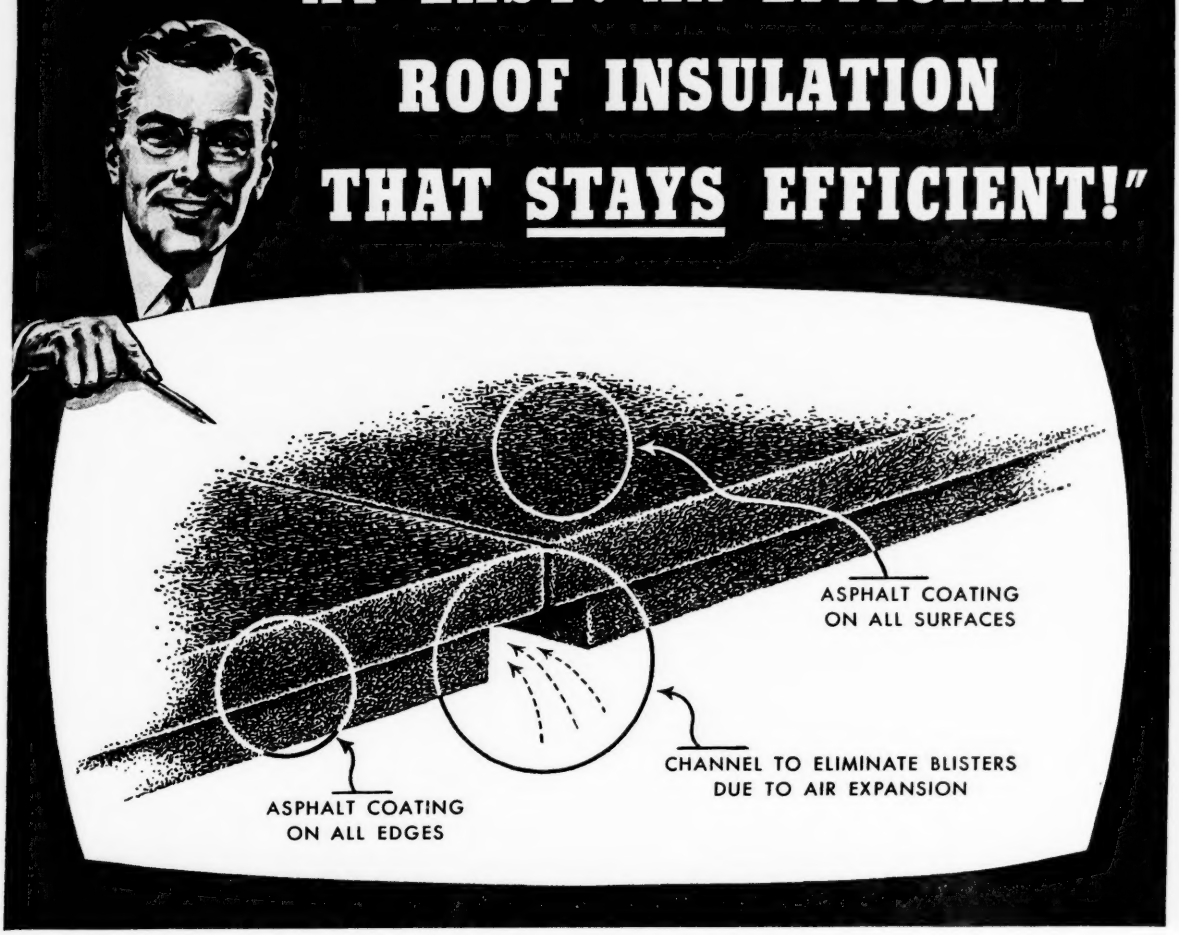
CHICAGO BRIDGE & IRON COMPANY

Birmingham .....1530 North Fiftieth Street
Houston .....5614 Clinton Drive
Tulsa .....1611 Hunt Bldg.
San Francisco .....1040 Rialto Bldg.
New York .....3313-165 Broadway Bldg.
Cleveland .....2216 Guildhall Bldg.
Chicago .....2106 McCormick Bldg.
Philadelphia .....1619-1700 Walnut Street Bldg.
Detroit .....1510 Lafayette Bldg.
Havana .....402 Edificio Abreu
Washington .....632 Washington Bldg.

B-928

Plants in BIRMINGHAM, CHICAGO and GREENVILLE, PA.

"AT LAST! AN EFFICIENT ROOF INSULATION THAT STAYS EFFICIENT!"



Moisture-Proof Asphalt Surfacing Guards Against Deterioration Caused by Absorption—Assures Permanent Efficiency

THERMAL conductivity of only 0.30 . . . permanent protection against damage through moisture penetration during application and in use . . . a patented device to take care of roof blisters caused by air expansion . . .

All these important features are offered by Celotex Vapor-seal Roof Insulation!

No other fibre board insulation in established usage equals its high insulating efficiency. No *other* has these three features to safeguard efficiency and permanently assure satisfactory functioning.

The tendency of the roof covering to blister under hot sun is reduced by a new exclusive feature of Celotex Vapor-seal Roof Insulation—*a half-inch offset on all bottom edges.* This forms a network of 1"x½" channels next to the deck, which affords space for trapped air to expand when heated, averts blistering.

Permanently protected against termites and dry rot by the exclusive, patented Ferox Process, *this new product deserves your investigation.* See your roofing contractor, or mail coupon for specifications and sample.

THE CELOTEX CORPORATION MR4-42
919 N. Michigan Ave., Chicago, Ill.
Please send specifications and Sample of Celotex Vapor-Seal Roof Insulation.

Name.....

Address.....

City.....

County..... *State*.....

CELOTEX

REG. U. S. PAT. OFF.

VAPOR-SEAL ROOF INSULATION

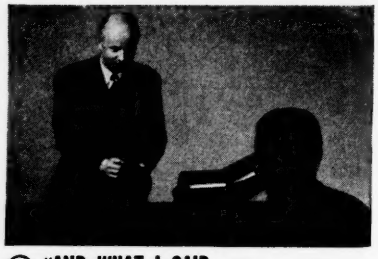
INSULATING SHEATHING, LATH, INTERIOR FINISHES
ASPHALT SHINGLES, SIDING, ROLL ROOFING
HARD BOARDS • ROCK WOOL BLANKETS, BATTS
GYPSUM PLASTERS, LATH, WALL BOARDS

★ THE CELOTEX CORPORATION • CHICAGO ★

*REX MAN

. . . "I'VE STARTED AN *S. O. R.* PROGRAM OF MY OWN"

① **"REMEMBER, WHEN** you told me that I was losing money trying to keep this conveyor in good shape?" this engineer asked me. "You pointed out the advantages if I would *S. O. R.*, which was your fancy way of saying, 'Standardize on Rex Idlers'."

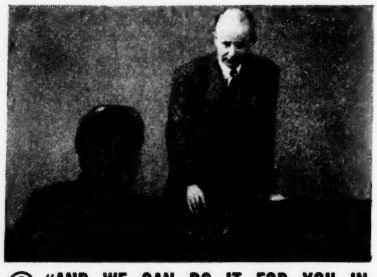


② **"AND WHAT I SAID** still goes. If you want to maintain peak production these days—and get more capacity—you can't do either without having trouble-free, consistently low cost belt conveyor performance—the kind you get with Rex belt conveyors."

③ **"THAT WAS WHY** I pointed out to you how Rex can step up capacity by eliminating shutdowns. Plant after plant working on war contracts has insured peak production through modernizing their belt conveyors with installations of Rex idlers."

④ **"NOW THAT YOU'VE DECIDED** to *S. O. R.*, you'll gain the protection of this rugged Rex idler, with its triple sealed, high grade bearings—sealed against dust—protecting your belt against oil leakage. Those factors mean far less pampering!"

⑤ **"YES, IT SOUNDED GOOD** to me then, and it sounds better now since I've tried it. I was a little skeptical when you told me of the advantages of Rex belt idlers. But they've actually increased my capacity through elimination of shutdowns."



⑥ **"AND WE CAN DO IT FOR YOU IN** other ways as this new book will tell you," I answered. "It tells about the complete line of Rex conveyors, including steel apron conveyors, super-capacity bucket elevators, etc. It's Catalog No. 410."

Rex belt idlers and conveyors are being put to widespread use throughout industry during this emergency, as they have in years past. They stand ready to help you out of many a production hole if you're faced with tight delivery dates on war contracts. See your Rex Man or write 1718 West Bruce Street, Milwaukee, Wisconsin.

REX BELT CONVEYORS

CHAIN BELT COMPANY OF MILWAUKEE

Baldwin-Duckworth Chain Belt Division, Springfield, Massachusetts • Worcester, Massachusetts
Rex Chain Belt and Conveyor Divisions, Milwaukee, Wisconsin

REX CHAIN BELT COMPANY

When the OVERHEAD problem is too much to carry . . .

● When you're jammed to the wall for time and working day and night to keep production rolling, it's good management to avoid unnecessary burdens like roof repairs.

That is why so many hundreds of plants vital to America's war program are protected with Barrett Specification Roofs.

Barrett coal-tar pitch and felt roofs have demonstrated for 88 years their ability to withstand water, heat, fire and mechanical wear.

The 20-year bond that the Barrett Specification Roof carries against repairs and maintenance only hints at its actual life, which repeatedly runs for decades longer!

If you are putting up a new plant . . . or expanding your output by opening up unused sheds and warehouses . . . call Barrett or your local Barrett Approved Roofer. He's an experienced roofing expert, chosen for his know-how in handling roofing problems of all kinds.

He'll be glad to take the roofing problem off your shoulders "for the duration" . . . and for many years to come.

Barrett Specification Roofs*

*Reg. U. S. Pat. Off.

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET, NEW YORK

2800 So. Sacramento Ave., Chicago, Ill. Birmingham, Alabama

. . . ONE OF AMERICA'S GREAT BASIC BUSINESSES

BARRETT BUILT-UP ROOFS..SHINGLES AND SIDINGS..ROLL ROOFINGS..ROCK WOOL INSULATION..BLACKOUT PRODUCTS

IMAGINEERING

IS A KIND OF SKY-HOOK

All the tools America has, all we can contrive, are pre-empted for the job at hand.

While every hand is busy with production, our vision may properly be lifted beyond the horizon to meet the challenge of the future.

Imagineering is a word for it, a sky-hook to lift our thinking, a formula for helping to decide where we go from here.

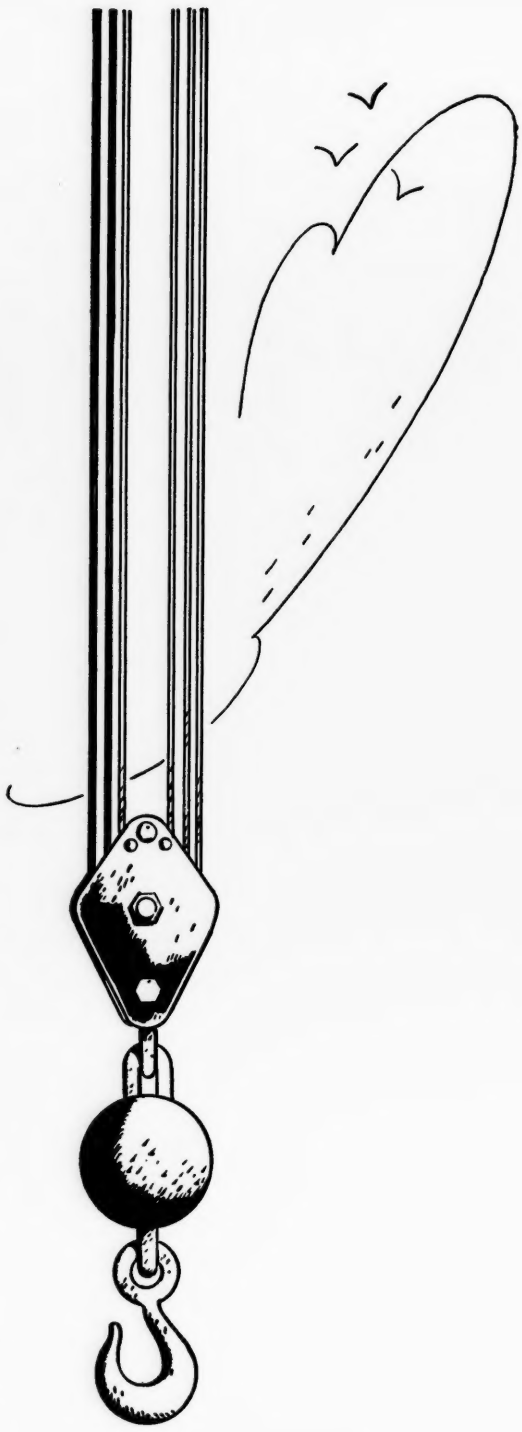
Imagineering is looking at the things you used to make, and deciding that if you don't make a prime job of finding out how to make them immeasurably better, you may never be asked by your customers to make them again.

Let your imagination soar, then engineer it down to earth. Forget your old assumptions. Bury your old prejudices. Look at all the developments that are coming out of a thousand research laboratories. Invite suggestions.

For there are millions of new jobs to be made when this war is over. They are your responsibility, and ours.

Now is the time to do the Imagineering which will make those jobs. Perhaps you would like to have us help you explore the possibilities of Alcoa Aluminum.

ALUMINUM COMPANY OF AMERICA, 2109 Gulf Building, Pittsburgh, Pennsylvania.



ALCOA ALUMINUM

REG. T. M.

★

One can learn a lot about building barges in 38 years . . . *we have*

OLD TIMERS. Two of the earliest barges produced by American Bridge Company. (Launched 1906.) These barges were the forerunners of hundreds of efficient and economical types which now ply the waterways of the world.

38 YEARS ago the first barge ever built by American Bridge Company slipped off the ways at Ambridge, Pa., on the Ohio River.

More than a barge was launched that day. A business was born that has come to see thousands of the craft it built plying the waterways of the world.

There is nothing accidental about this success. We believe it is due definitely to the determination of American Bridge Company engineers to put the best creative talent possible on the design and building of floating equipment.

As a result of this pioneering, countless improvements and innovations introduced by us have been accepted as standard practice; many patented features, exclusive with us, perfected.

So when you think of barges, think of American Bridge Company, the pioneering it has done in design and the accumulated experience its engineers can bring to bear on any job they undertake.

AMERICAN BRIDGE COMPANY

General Offices, **Frick Building, Pittsburgh, Pa.**

Baltimore · Boston · Chicago · Cincinnati · Cleveland · Denver · Detroit · Duluth Minneapolis · New York · Philadelphia · St. Louis

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* · United States Steel Export Company, New York

UNITED STATES STEEL

YOU'LL find Flexomotives in most of the strategic centers of industrial America pitching in on the roughest, toughest kinds of track haulage jobs. You'll find, too, that they're doing these jobs the way they should be done, *must* be done . . . fast, economically, efficiently, with top-notch performance from start to finish. That's the kind of haulage performance *you* want. You'll get it with a Flexomotive. Write for bulletin.

PLYMOUTH LOCOMOTIVE WORKS

DIVISION OF THE FATE-ROOT-HEATH COMPANY • PLYMOUTH, OHIO

*REG. U. S. PAT. OFF.

PLYMOUTH Flexomotive

DOLLAR FOR DOLLAR———THE GREATEST LOCOMOTIVE EVER BUILT

WHAT PART HAS *Pipe* IN NATIONAL DEFENSE?

YOU'LL probably be surprised. For example: A bed for one of Uncle Sam's soldiers takes 12 feet of pipe. A water line for just one cantonment is many miles long. A single demolition bomb starts from more than a thousand pounds of steel tube. The boilers of our newest battleships contain tons and tons of the finest seamless boiler tubes. An army bomber may require a thousand pounds or more of mechanical tubing. Uncounted numbers of shells, tank parts, cannon mounts, machine gun rests, incendiary bombs, all take an enormous quantity of pipe and tubes.

We wish you could see the ceaseless activity going on within NATIONAL Tube Company mills, the speeding up of production facilities, the improvements through tireless research. Then you would share our confidence that whatever the call for tubular products, whether for industry or war requirements, NATIONAL Tube will be ready to do its full part in meeting it.

We are glad that in this emergency we have been able to render our country quick, vital and quantity aid. We're all in the same boat, pulling to the same end—mill, factory, distributor, and consumer.

It's a journey none of us wanted to take, but having embarked on it, we Americans shall see it through.

NATIONAL TUBE COMPANY

PITTSBURGH, PA.

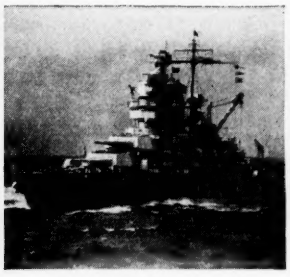
Columbia Steel Company, San Francisco, *Pacific Coast Distributors* — United States Steel Export Company, New York

USS

UNITED STATES STEEL

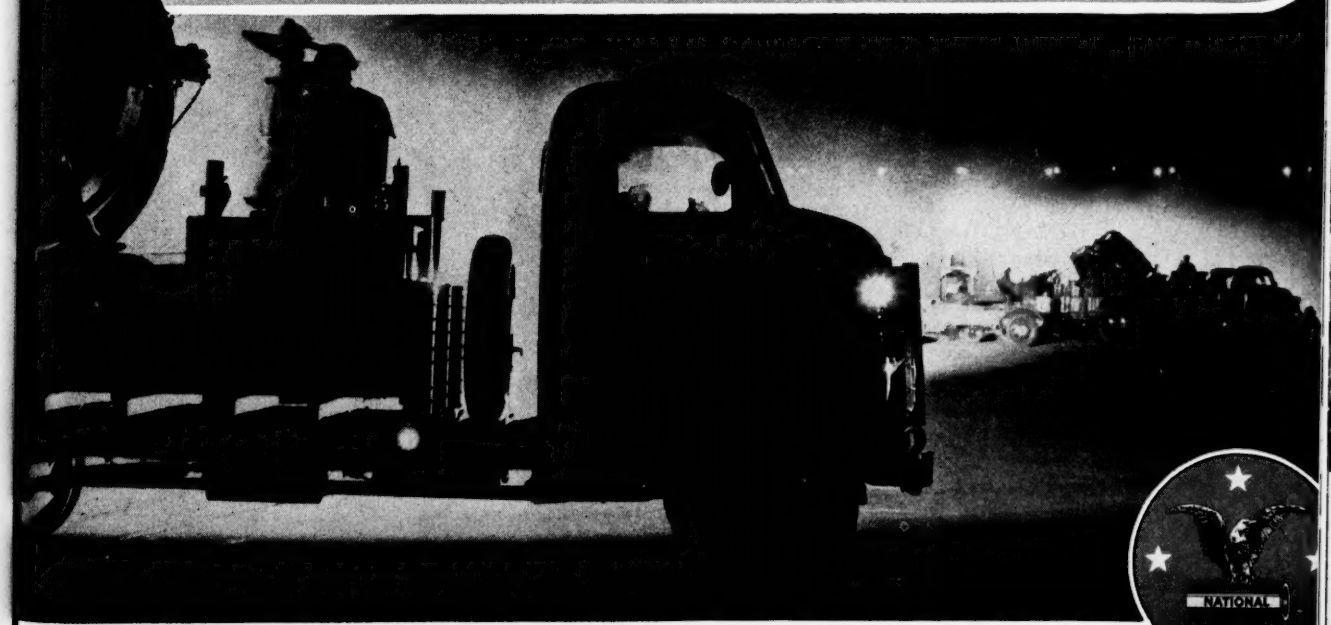
TRENCH MORTARS stand firmly on supports whose strength is provided by SHELBY Tubes.

TANKS of all kinds call for vast quantities of Seamless Tubing for many parts.



BATTLESHIPS are a maze of pipe and tubes. From stem to stern pipes provide strength and safety.

MODERN BOMBERS rely for strength on SHELBY Aircraft Tubing in many parts.



NATIONAL

AMERICA'S STANDARD WROUGHT PIPE

PROLONG THE LIFE OF YOUR BURROUGHS MACHINES

WITH BURROUGHS MECHANICAL SERVICE

Today it is vitally important that all users of figuring and accounting equipment make their machines last as long as possible.

The accessibility of experienced Burroughs service men . . . the quality of their work . . . their eagerness to do a good job . . . all are major factors in helping Burroughs users to keep their machines in uninterrupted operation — get more and better work out of them — and greatly prolong their life.

For complete information, telephone your local Burroughs office, or write direct to—

BURROUGHS ADDING MACHINE COMPANY
DETROIT, MICHIGAN

In addition to mechanical service, Burroughs also offers the advice and counsel of its Systems and Installation staff, which is often able to suggest operating short-cuts that save time, as well as to show how related records and vital statistics may be obtained as a by-product.

BURROUGHS MECHANICAL SERVICE PROVIDES THESE ADVANTAGES

1. Burroughs mechanical service is rendered by factory-controlled, factory-trained, salaried representatives whose service work is guaranteed by Burroughs.
2. Every Burroughs service point has genuine Burroughs parts to meet any service need.
3. Burroughs service is national, conveniently located to give prompt attention to every call.
4. All Burroughs service men are promptly and fully informed about every improvement in service, every new feature and every mechanical change.

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FIGURING, ACCOUNTING AND STATISTICAL MACHINES SPEED WAR WORK

New Kinds of Factories

The order of the day is for new kinds of factories, and the problem of industry is to build them swiftly and efficiently —a task that demands full use and close cooperation of all available facilities.

The 3-Plant structural steel fabricating and erecting service of Virginia Bridge is coordinated and streamlined to help industry meet these unusual demands. Our multiple-plant operation under the direction of one compact organization of nearly fifty years' experience, is geared for volume production at maximum speed.

Virginia Bridge

STEEL STRUCTURES
All Types

Plants:
Roanoke, Va.
Birmingham, Ala.
Memphis, Tenn.

VIRGINIA BRIDGE COMPANY
(South's Largest Structural Steel Fabricator)
Roanoke Birmingham Atlanta Memphis New York Dallas

UNITED STATES STEEL

Equipping a soldier for modern, mechanized warfare goes a lot further than supplying him with a "tin" hat, a gun and ammunition. For each and every soldier there is needed approximately 250 pounds of cotton not only for his clothing, bedding and housing, but also in many parts of the war-production machinery. To outfit an army of 5,000,000 men would require 2½ million bales of cotton.

Cloth production alone is a staggering item. Last year, for example, 10 million bales of cotton were used to produce 12 billion yards of cloth, only 30 per cent of which was for military purposes. Now this consumption has been vastly increased, how much cannot be accurately stated.

The above figures give some idea of the challenge facing the Southern textile industry. But the industry stands ready to meet it. Due in large part to improved design of spindles and to multiple-shift operation, each spindle can process 229 pounds of cotton—more than two-and-one-half times its capacity twenty years ago.

The textile industry is one of the leading interests in the Industrial South that it has been the privilege of Bethlehem Steel Company to serve. With its Sparrows Point Plant, near Baltimore, this company is especially well situated to supply steel used in spindles and factory buildings, in cultivators and other agricultural equipment, in carders and looms, in the dams that store up power, the turbines that harness it and the transmission lines that distribute it.

BETHLEHEM STEEL COMPANY

Research is showing many manufacturers how to use their new wartime plant capacity for profitable post-war production.

We are designing, building and equipping several important industrial research laboratories for war work now. If you have such a problem, a letter or a phone call to our Cleveland or New York office will get you quick information as to what we are doing for others, and can do for you.

The H.K. Ferguson Co.

ENGINEERS AND BUILDERS

CLEVELAND NEW YORK

2042 A.D.

• The shapes and forms that will carve the skyline in 2042 A.D. can only be guessed at. Their design is on the blueprints of the future. Being manufactured and installed today, however, are smooth-flowing pipe lines that will underlie the cities of tomorrow. Lock Joint Pressure Pipe Lines are constructed and laid with an eye to the demands of distant generations. A century of useful service, immune to tuberculation and corrosion, maintaining their original high carrying capacity and original strength! The life expectancy of Lock Joint Reinforced Concrete Pressure Pipe Lines should make them your best investment in 1942. Whether your project is large or small, your 'phone call, telegram, cable or letter to any of our offices, will bring a prompt reply.

LOCK JOINT PIPE COMPANY

Established 1905

AMPERE, NEW JERSEY

Denver, Colo. • Chicago, Ill. • Kenilworth, N. J. • Kansas City, Mo. • Rock Island, Ill.
White Plains, N. Y. • Valley Park, Mo. • Cleveland, Ohio • Hartford, Conn. • Navarre, Ohio

SCOPE OF SERVICES

Lock Joint Pipe Company specialize in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply Mains as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous lines.

LOCK JOINT Reinforced Concrete PRESSURE PIPE

I AM TIRED OF BEING SCOLDED

Only a person deliberately blind to the truth, or so situated that the truth never penetrates to him, can have failed to observe in recent weeks a slow crystallization of resentment against incessant government scolding which the public has had to endure.

Indignation has hardened slowly and there has been a reluctance among most people to express the depth of their feelings.

But they are no longer willing to sit quietly under the smart of hearing at least daily that the war is being lost because "the people" don't realize what they are up against. They do not like being bluffed into regimented silence by the fatuous warning that to speak out for reform in government, to plead for intelligent readjustment of labor laws, and to protest against the inequities of price-controls which ignore such basic price-formulating factors as wages and agricultural products, is to act the part of "sixth columnists."

Day after day the people have listened to the same kind of galling vituperation from the top men—and women—of government. We are lazy, we are soft, we can't take it, we are demogogues of disunity, we won't arouse ourselves, we are this, we are that—

And always to be found somewhere in these reproaches, either stated baldly or tucked away between the lines where the implication cannot be overlooked, is the charge that we are bogging down the war program because of our insistence upon doing "business as usual."

But who, I should like to ask the powers that be in Washington, is insisting upon "business as usual?" Who in this land has shown himself unwilling to make changes and sacrifices, to forget self and false pride, to let the dead past bury its dead and to grasp the hand of a former enemy so that the common foe may be vanquished? Let's see about this

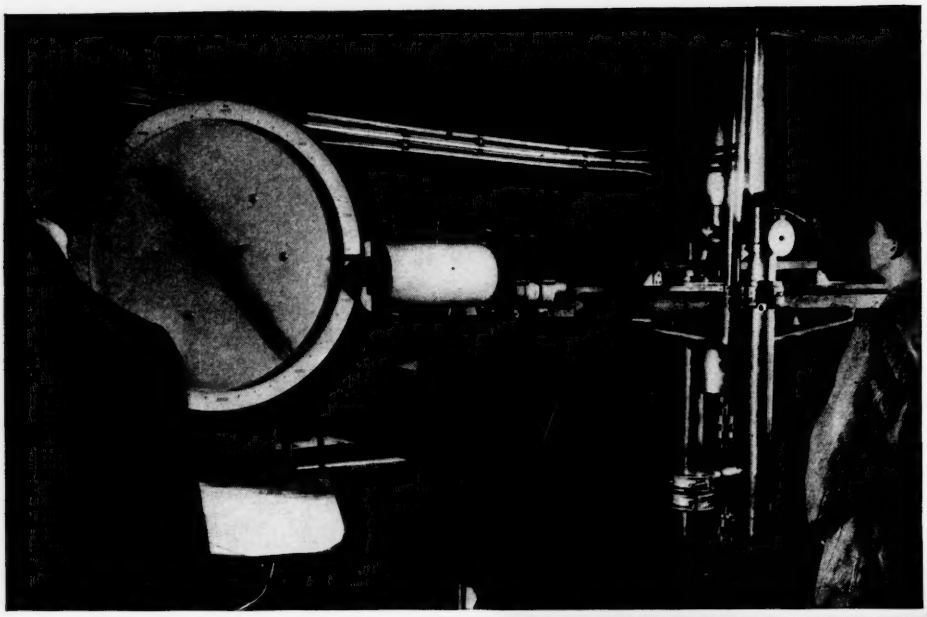
Is it industrial management? Have there been any complaints from, say, the presidents of any automobile concerns because they have been ordered to switch from passenger cars to the production of planes, tanks and guns? We have heard none. There have been some spiteful insinuations made against them in Washington—some pass-the-buck implications that they, and not the heads of government, were to blame for not gearing their plants to the war machine sooner than they did; but there is not a shred of evidence to support such innuendoes.

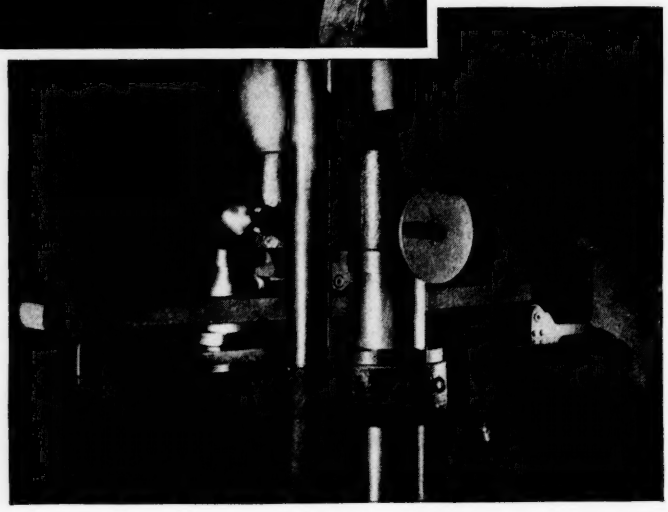
Is it "big business?" Are the Morgans or the Rockefellers sabotaging the war program? Have they been coy about volunteering their resources and their talents whenever and wherever the opportunity was offered? If so it has been kept mysteriously out of the public prints.

Is it little business? Have the store-keepers of America insisted upon "business as usual?" Have they shown any unwillingness to go along with priority orders and rationing? Have they been guilty of bootlegging or profiteering in commodities which they have been ordered to conserve? Not a single proven complaint of such unpatriotic conduct has come to our attention.

Is it the farmer? Has he refused to raise more crops, to feed more livestock, to work longer hours than from sun-up to sun-down? No, but he has—and small wonder—developed an unprecedented interest in getting all he can from his land and his labors. After all, the bureaucrats whose jobs depend on subsidies and their devious distribution have been feeding the farmer for a long time on the pap of parity and the philosophy of scarcity.

(*Continued on page 23*)





* The "2-inch by 1-inch Test Bar Test," illustrated above, is an acceptance test for cast iron pipe. The breaking load and deflection of the bar, which indicate the physical characteristics of the metal, are determined from this test. It is one of the routine tests made by this Company to insure that the quality of its pipe meets or exceeds the requirements of accepted standard specifications for cast iron pipe. *United States Pipe and Foundry Co., General Offices: Burlington, New Jersey.* Sales Offices in Principal Cities.

*** One of a series of controls in operation at each of our plants, beginning with inspection and analysis of raw materials and ending with tests of the finished product, all subject to the central control of our headquarters staff at Burlington.**

U.S.
cast iron
PIPE

Centrifugally or Pit Cast for water, gas, sewerage, drainage and industrial services.

I Am Tired of Being Scolded

(*Continued from page* 21)

Is it the factory worker, the clerk, the professional man, the white-collar man, the "average citizen?" Certainly no such charge can be made against the unorganized millions of common citizens. And if there are reasons to support the charge against some elements of organized labor, who is to blame for that? Are the rank and file of union men and women to be blamed for making unreasonable demands upon management when, since passage of the Wagner Act on July 5, 1935, unionism—all kinds, good and bad—has been petted and coddled and made to believe that Utopia could be gained by shorter hours and higher wages instead of by hard work and the ambition to vault into the seats of management?

And who are left? Whom have we failed to consider here? Since the unflattering comparison frequently is made between a unified America and a France which fell because her people wanted "business as usual," let us ask what caused the downfall of France?

It is easy to reply that it was due to a naive confidence in the might of the Maginot line, or to atrocious errors of military judgment, or to the 40-hour week and other "popular front" experiments. And of course these were contributing factors.

But the truth—to be found in the journals of sympathetic observers and in the records of the Riom war-guilt trials—is that the leadership of France betrayed her to her enemies. It was the government—the fatal bureaucracy which never got anything done because it couldn't decide what it wanted to do—didn't know whether it was fish or fowl—didn't know but that victory might bring more problems than defeat!

And today the American public is saying to its representatives in Washington—saying earnestly and sincerely—that they and their colleagues and the institutions which they have erected in the national capital and the hoardes of alphabetical bureaus which they have spawned are primarily to blame for any lack of enthusiasm which the public may seem to have evinced to see this war through to victory.

The people who have felt so often the lash of governmental reproach are ready and willing—yes, eager to share to whatever degree may be helpful the inconveniences, the sacrifices, the dangers which their sons and their neighbors' sons are facing in the zones of shooting war.

If government says to them: "Put up your cars," they will put them up. If it says to them: "Go without meat," they will go without meat. If it says to them: "Quit your nonessential jobs and go into the factories or wherever else you may be needed," they will go. . . .

They will go as long as they have confidence in the men who compose their government. They will go as long as they believe that their government is determined to win this war in the shortest possible time and with the smallest possible expenditure of American life. But they cannot hold that confidence unshaken if official Washington persists in playing the old, petty game of "politics as usual."

Their confidence cannot endure the stench of pork that comes from such proposals as the billion-dollar Rivers & Harbors bill—a bill to squander money and vital materials on such wild-eyed projects as the St. Lawrence Seaway. They can hardly repose confidence in a leadership which responds to proddings of organized minorities such as dictated the stupidities in present price-control legislation.

They would be glad to forget that the Office of Civilian Defense was turned over to an amateur social worker and a volunteer fireman whose first act was to hire a toe-dancer to dance in nonexistent air-raid shelters; and they are burying the recollection that Congress took time off in the midst of a debate on war appropriations to vote itself pensions—later, thank decency, revoking the crime.

But they are still unable to reconcile good government with the present smirking, dishonest policy toward organized labor—which, heaven knows—has as much to lose in this war as anyone else. That restrictions on working time, strikes and delays caused by inter-union disputes, costly, pointless controveries over the closed shop, and nation-wide racketeering by labor unions in war industries should be tolerated at a time like this is simply and completely beyond the understanding of the American public.

Much is being made of the fact that a few pipsqueak voices have been heard to deny that America can win this war; but the people as a whole do not believe the job is too great. Temporary setbacks and military or naval reverses will not break the spirit of these people.

But there is a growing suspicion among them that they haven't been getting the kind of leadership they require and deserve. Too many men whose brains and energy are sorely needed for top executive jobs have been snubbed or subjected to ridicule by precocious infants who have suckled at the New Deal nipple. *Too many positive manifestations have been given that executive Washington is still dividing its energies between the war and the pursuit of social perfection!*

Washington's bureaucratic scolds keep urging us to realize that we are participants in the greatest war of all time. They leave us with the nasty impression that they believe we have been failing in our duty, unfaithful to our trust—and in fairness we demand that the accusation be itemized.

To the best of our knowledge we—that industrialist, that storekeeper, this journalist, in short, "we the people"—have done gladly what we have been asked to do; and to the best of our ability we will follow the example and the direction of our leaders.

We need to know clearly what they would have us do. We must have the inspiration of their unselfishness and their own single-minded determination to put first things first and damn the rest for the duration! That's all we ask.

H. C. Buckland

Editor, The Huntington (W. Va.) Herald-Advertiser.

THE SOUTH AT THE CROSSROADS

By

E. Morrell

Managing Editor, MANUFACTURERS RECORD

BECAUSE what I am about to say may constitute criticism it seems only fair that you should know something of my qualifications. Most of you know that I am English. Therefore I do not believe that I possess an inherited sectional prejudice that a northerner or a southerner might be expected to have. I have lived for some years in the North and a good many years in the South; actually I am proud to claim the South as my adopted home. For several years I was associated with universities which tended to develop an academic or theoretical point of view. More recently I have been on the other side of the fence in my association with industry; however, the point of view of an editor, even the editor of an industrial publication, and the oldest southern industrial publication at that, is rather like that of an onlooker instead of the necessarily limited outlook that close association with a specific manufacturing concern or industry might well develop. For these reasons I believe I am qualified to offer the following opinions. They are not offered as those of an expert but they are the opinions of an extremely interested observer endeavoring to see all sides of the question and anxious to see the South come into its own.

The subject "As Others See Us" is one of extraordinary breadth capable of innumerable sub-divisions, each of which are not only interesting and extensive in themselves but important for discussion as to past, present, and future. It is a temptation to discuss several of these, but time offers definite restrictions. Therefore I am limiting my own participation to what I believe are fundamental factors common not only to my own work but also are common to this association and the principles we are separately and jointly striving to attain.

The MANUFACTURERS RECORD for going on one hundred years has had one avowed purpose—that of industrially developing the South. In that space of time industry, and specifically manufacturing, has grown from virtually nothing to where, in 1941, we have estimated the aggregate value of manufactured products produced in the South to be in excess of twelve billion dollars. To what extent the MANUFACTURERS RECORD has been responsible for this growth I would hesitate to say, nor is it my purpose here to boast of accomplishments, though we are proud, justifiably I believe, of the part we have contributed. As a matter of fact, while I readily admit the value of studying historical fact before embarking on new ventures, it will serve little purpose in the present discussion. Furthermore, in my opinion, the South would be infinitely better off if it were to think less of history, or the past, and more of the future—not that I am belittling the South's past, but I honestly believe this constant living in the past is detrimental to the progress of the future.

For I don't know how many years, there have been countless outbursts against the South, the latest I believe was in 1938 when this region was castigated as the Nation's No. 1 Economic Problem. I am not going to debate that statement. I refute it utterly. The South, we all know, has got its problems like every other place but they are *not* the Nation's. If the South is anything to the Nation, and it is, it is the Nation's No. 1 opportunity. I say that advisedly and not as a rhetorical piece of propaganda or wishful thinking. This business of holding up the South to ridicule is little else but bear-baiting, a past-time to be indulged in by devotees of yellow journalism and good-intentioned but misguided and impractical social uplifters. I do not want to dwell on this subject but it has an important concomitant; namely, that this constant business of holding the South up to scorn has, as might be expected, fostered a psychological attitude among a portion of the region's inhabitants that can best be described as a defeatist attitude.

It is all very well to say that we should not delude ourselves and that we should face the truth, but this does not necessarily mean that the South should submerge itself in self pity, yet this is precisely what has been and still is going on.

What happened when the Temporary National Economic Committee's report appeared? Teachers, economists, socialogists, ministers, state and federal officials, and even some newspapers immediately climbed on the bandwagon, acclaiming to all and sundry how true this report was. Few of them took the trouble or had the desire to check the so-called facts. It is doubtful if it is generally realized to what extent this self-pitying attitude has sunk into the minds and affected the mental processes of some southern people.

No, it is not necessary to delude ourselves in facing facts. All one needs to do is to face the future instead of the past.

I have said that the South is the Nation's economic opportunity. Why? How? In answering those questions I want to point out that no country has ever acquired great wealth through agriculture alone. It is industrial development and especially manufacturing that makes a region wealthy or raises its people from a state of mere existence to that of relative comfort. The South still is thought of as primarily an agricultural region. It is, so far as the number of people dependent thereon are concerned, yet the value of agricultural output is exceeded by that of manufacturing, alone, by more than three times. If you have any doubt as to what this means to the South take a look at the source from which your state and local taxes are derived. Eliminate those taxes

acquired from some phase of industry and try to place them elsewhere. See what kind of burden is placed on your shoulders and those of agriculture if you had no power companies, no manufacturers, and such like to carry the load. But, perhaps I am stressing unnecessarily the importance or value of industry when it is already sufficiently well known. Before leaving this subject however, I would like to call your attention to a matter of frequent discussion. I have said that no country or region has ever acquired great wealth through agriculture. That being so, I see no great objection to outside or foreign capital such as often is raised to the use of northern capital in developing southern ventures. In the first place, it must be remembered that many of the South's newest developments, because of present day methods and the type of products manufactured, demand the investment of many millions of dollars if the outcome is to be given the best opportunity. In the second place, the term "northern capital" is really a misnomer. Actually, the capital which comes out of New York City, does so only because New York City *happens* to be the Nation's financial center. Except for the entrepreneurial profits derived from purely financial ventures, comparatively little profit originates from manufacturing in New York City. By far the largest part of the capital comes, through the medium of our present day banking and investment procedures, from the thousands of towns, hamlets and cities scattered throughout this whole country *including* the South. So, when we talk about and criticize northern capital we are really casting reflections on our southern capital. That is not wishful thinking nor a figment of my imagination for it has been confirmed by one of this country's largest investment bankers. Another thing to remember about this system is that besides assuring a greater likelihood of success by providing adequate capital rather than the hazardous operations made necessary by limited investment, it distributes over a wide area any loss that may be incurred instead of having all the eggs in one basket. Finally, on this subject, may I remind you that the East, North, Mid-west, and the West, all were developed by outside capital. After all, it is only a question of time before a region reaches the point of financial independence. In the meantime, the South has *got* to have capital and if the region as a whole or the people and their institutions individually cannot or will not provide the necessary capital, it will have to be obtained elsewhere. Of course I grant you that absentee ownership in industry, as in agriculture, is far from an ideal condition and wherever a southern region *can* raise its own capital, such is certainly to be preferred.

"The South at the Crossroads" was presented as an address by Mr. Eric Morrell, managing editor of the MANUFACTURERS RECORD *at the first annual meeting of the Southern Association of Science and Industry at Atlanta, Georgia, early this month.*

This new organization has a program that is dedicated to the industrial and cultural self sustainment of the South. Through its unselfish efforts for the South it hopes to contribute to the Nation's greater wealth and progress.

Mr. Morrell, a Britisher by birth and a Southerner by choice, has traveled widely throughout the world. From this background he also speaks with an intimate knowledge of the South and its resources and with an unswerving faith in the South's opportunities. He expresses his own thoughts and opinions as an individual not as a member of the editorial staff of the MANUFACTURERS RECORD.

We hope that a careful reading of this address will please our readers as much as it evidently pleased his Atlanta audience and as much as it has pleased his associates in this office.—EDITOR.

Having wandered rather far afield, let me return to the point of discussing the dependence of industrial development on this region's wealth of resources, its education, and its research. There are, of course, an exceedingly large number of factors that comprise resources but those to which I wish to call special attention are the raw materials.

Essentially, raw materials are those of agricultural and mineral origin. Certain of them, in both classifications, are not only well known but have been utilized as raw materials for manufacturing over a long period of time. Among minerals were such things as coal, iron, stone, and a few others. Among agricultural materials were timber, naval stores, cotton, tobacco, and possibly some others. Minerals were restricted partly because they were more economical to use from other sources and partly because most of the minerals in the South were of the non-metallic variety for which there was limited use. Even agricultural products were limited in their use to the few things that could be processed directly therefrom.

During the last war, however, this country's prior dependence upon foreign sources for many items came as a rude awakening and provided the impetus for development of chemical conversion and processing. Today, all of us are conscious of the important part chemistry plays in our lives. Thirty years ago virtually no sulphur was produced in this country, but today the major part of the quantity consumed is derived not only from domestic sources but from southern deposits and there is hardly a single product manufactured into which sulphur does not enter in one form or another. One by one we have seen the use of minerals expanded. Others, heretofore almost valueless, have come into prominence or at least attained a position of usefulness. New materials and new products resulting therefrom have found their way into our lives. So, too, with agriculture; trees no longer are used just as a source of wood for they now supply a large percentage of our cellulose from which, in turn, are made so many things that a list of them would almost fill a book. Cotton too has become a source of

(*Continued on page* 62)

Southern Firm to Produce War-Vital Nickel

An engineer measures a sample channel in one of the nickel ore bodies near the site of the new Cuban plant.

LAST month Secretary of Commerce Jesse Jones made a brief but significant announcement. "The Defense Plant Corporation and the Metals Reserve Company," he said, "have entered into an agreement with the Freeport Sulphur Company whereby $20,000,000 will be made available for the production of nickel in Cuba."

Behind those 32 words was a stirring story of how a Southern company, soon after the outbreak of war in Europe, had undertaken an all-out research campaign on one of America's most critical raw material problems—the shortage of nickel for manufacturing armor plate and the other tough, high strength steels needed to fight the Axis.

Freeport began this campaign to find a way to recover nickel from low grade ores early in 1940, months before the invasion of Belgium and Holland and the fall of France. While nickel was an entirely new field for the company's engineers and chemists, its policy of aggressively seeking new things to develop was not new. Freeport has had a long record of industrial pioneering, stretching back to 1912 and the opening of the first sulphur mine in Texas, now the nation's greatest sulphur producing state.

This record includes a remarkable sulphur mining plant "on stilts"—the Grande Ecaille plant, in Louisiana, resting on 75-foot-long piles sunk into the bottomless muck of the lower Mississippi Delta. It includes, also, a process for concentrating low grade manganese deposits and a plant in Cuba that has become one of the United States' leading sources of high grade manganese ore.

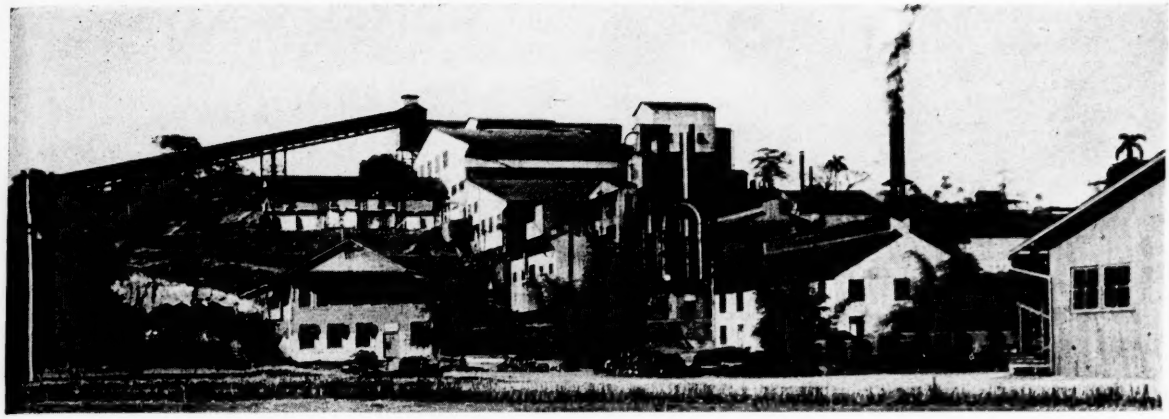
The nickel ores that Freeport planned to treat occurred on the same eastern end of Cuba as its manganese ores but on the northern instead of the southern side. They have been known for years, but although some iron ore has been produced from them, their nickel content is so low that the nickel itself has never been recovered. Scientists in a number of countries have unsuccessfully tried their hands at devising recovery processes.

Freeport sent geologists and engineers to examine and sample the deposits, which constitute a vast mineral mantle covering miles of wooded hills in Oriente Province. Ore samples were analyzed in laboratories in Louisiana and Texas, and research was started on possible processes for unlocking the small fractions of nickel from the other minerals. The Nicaro Nickel Company was organized with Freeport capital to do the work.

As the research went forward, it became more and more obvious that the United States was headed for a serious nickel shortage. The metal is needed for a variety of indispensable roles both in peace and wartime production. One of these is in steel for armor plate. The huge expansion in armor plate needs in order to clad ships, tanks and planes soon placed a great strain on the available nickel supplies.

With the exception of a small amount from far-off New Calendonia, all these supplies were coming from one district in Canada. Although at top capacity, the Canadian output was rapidly overtaken by the swiftly-rising demand. In May of 1941, a Government order was issued allocating all supplies of nickel, one of the first such orders to be handed down.

Within a few months civilian uses of nickel were being substantially curtailed. Defense requirements continued to climb. Besides making armor plate, nickel was needed to make steel for such aircraft parts as valves, shafting, bearings, axles, gears and pinions, and frames. It was needed to make stainless steels for firewalls, ammunition boxes, bomb chute de-



From the eastern end of Cuba, where Freeport's Cuban-American Corporation's manganese concentrating plant at Cristo, Oriente Province (shown above) obtains its manganese ore, will come the nickel ore. But whereas the manganese ores are on the southern side of the island, the nickel ores to be processed in Freeport's Nicaro Nickel Company's plant will come from the northern side.

vices, cable, exhaust manifolds and superchargers. It was needed to make steels for the machinery and equipment of a score of essential industries.

Freeport stepped up its research on the Cuban ores. A committee appointed by the Government examined a process on which the company's technicians were working, and reported favorably upon it pending a try-out in a pilot plant. Late in the summer the pilot plant was constructed and put into operation at Freeport's sulphur mining plant near the town of Freeport, Texas.

Meanwhile, the nickel scarcity grew more acute. Nickel plating on automobiles and many other products was disappearing. One of the big automotive companies cut the average nickel content of its cars to one third its former total, and made plans to cut it four-fifths more. Such nickel-using civilian goods industries as plating, radios, optical goods, incandescent lamps, tableware, and home and restaurant equipment were hard hit.

In November, the Engineers Defense Board, acting as a consultant for all defense agencies, reported that monthly defense demands alone were already 500,000 pounds above the available supplies.

Shortly after Pearl Harbor, the Government's technical committee visited the Freeport pilot plant, which chemists and metallurgists had been operating on a 24-hour-day basis. They reviewed the results of the plant operation and placed their stamp of approval on the process which the company had been seeking to perfect.

At about this same time the War Production Board issued a sweeping order banning a larger number of non-essential nickel uses. Included were such things as hardware and ornamental metal work, plumbing, heating and air-conditioning supplies, jewelry, toilet articles, souvenirs, art objects, novelties, games, furniture, sporting goods, clothing accessories and musical instruments. Their nickel consumption was ordered cut in half and prohibited entirely on March 31.

In this critical situation, the WPB went into action on the Freeport research results. On the basis of the Government committee's report and on the recommendation of the materials division under William L. Batt, the WPB authorized as a necessary part of the war effort the construction of a nickel recovery plant in Cuba.

President Batista of Cuba, through his minister of state, gave the approval of the Cuban government to the project, and Secretary of Commerce Jones then announced that $20,000,000 had been made available for the construction of the plant and facilities, to be built and operated by Freeport's Nicaro Nickel Company for the account of Reconstruction Finance Corporation.

At the request of the Government, Nicaro started preliminary work on the plant even before the actual contracts were signed. The project is being pushed at top speed in order that America may begin obtaining as soon as possible Freeport's war-vital nickel.

Four New Shipyards to be Built in South

Contracts for three new southern shipyards with 40 shipways and 315 new ships to be built in the South were among the awards made public by the Maritime Commission during March.

Largest of the shipyards is that of Higgins Industries, Inc., New Orleans, La., with facilities which will be the equivalent of 28 conventional ways. The other two shipyards, consisting of six shipways each, will be the St. John's River Shipbuilding Company's plant at Jacksonville, Fla., and a yard at Panama City, Fla., for which the J. A. Jones Construction Co., Inc., of Charlotte, N. C., has been given the contract. In addition, the Maritime Commission states that another new shipyard will be built at Brunswick, Ga., by the Brunswick Marine Construction Corp.

Of the 315 new ships contracted for, 293 are the Liberty type emergency cargo vessels and 22 are tankers. To Higgins Industries was awarded the largest contract yet made for Liberty ships, amounting to 200. Thirty-three of the same type will be built at Panama City, Fla., 30 at Brunswick, Ga., and 30 at Jacksonville, Fla. Fourteen of the tankers will be built by the Bethlehem Steel Company at Sparrows Point, Md., and will be of the Cimarron type, one of the largest and fastest tankers afloat. The remaining eight tankers will be of the coastal variety, 220 feet long, 37-foot beam and 12 ft. 10 in. draft, and will be constructed by Gray's Iron Works, Inc., at Galveston, Texas.

SOUTH'S NEW $20,000,000 PIPELINE PUT IN OPERATION

IN only slightly over eight months, the $20,000,000 welded steel Plantation Pipe Line, extending from Baton Rouge, Louisiana, to Greensboro, North Carolina, has been completely laid and is now in operation. With its branches, the entire line is 1,261 miles long.

Designed as a common carrier of gasoline and other refined petroleum products and to serve a large area of the southeastern United States at a time when a safe and certain supply of such products in that area is a vital defense need, the line draws on southern refineries for its supplies.

The main line passes through Mississippi, Alabama, Georgia, South Carolina and North Carolina and these same states comprise the line's primary delivery area. A branch extending into Tennessee services ports of that state.

The new Plantation Pipe Line was built without a hitch and followed carefully worked out plans, all co-ordinated to make for speed and efficiency. The construction of the line followed these consecutive steps:

1. An aerial survey was made of the route, following which a mosaic map of this route was prepared. Field surveyors next laid out the route itself.

2. Expert right of way men purchased rights of way, usually an easement through a strip of land 30 feet wide. The land over the completed line is subsequently cultivated in many cases.

3. When rights of way had been secured, gangs of workmen cleared paths for the new line. Woodsmen felled large trees. Giant "bulldozers" pushed through underbrush and levelled off a track about 30 feet wide. They made this about as serviceable as a secondary country road to permit trucks to use it as the line was being built.

Top to bottom — After surveyors had marked the route, crews cleared the path of trees and undergrowth so that this machine could dig the trench for the new pipeline. (2) Although all the pipe received an application of Ennjay Primer coating at the tube mills, supplementary coatings were needed to meet different soil conditions: here the pipe is being given a coat of Somastic. (3) A plant for covering pipe with mineral-filled asphalt enamel. (4) Next follows a machine-applied layer of asphalt-impregnated asbestos felt. (5) Another machine wrapping asphalt-impregnated asbestos felt around the pipe to ensure its longer life.

Top to bottom—(1) All lengths of the pipe were joined together by welding which made the joints stronger than the pipe itself. (2) The ends of the pipes which, because of the welds, couldn't previously receive a protective coating, are enclosed in Somastic. (3) With welds and coatings completed, a long section of pipe is supported over the trench ready for lowering. (4) With the pipe securely laid, the trench is quickly filled-in by machine. (5) The interior of a partially finished storage tank on the new pipe line.

4. This work was followed by gangs which dug the ditch into which the pipe was later laid. Ditching machines did this work in certain types of soil; trench hoes worked in other terrain and pneumatic drills and blasting hollowed out a ditch in rocky regions. The ditch was an average depth of 3 feet.

5. As the ditch was being dug the pipe itself was strung along the right of way. Often this entailed trucking pipe through dense woods, up rugged mountains and over virtually impassable roads, where tractors aided the trucks.

6. The next step called for laying the pipe on wooden supports over the ditch, where gangs of welders electrically welded the sections. The pipe itself came in 40 foot random lengths. The welded pipe will stand a pull of 76,000 pounds.

7. After the pipe was welded it was lowered into the ditch, following which the ditch was filled in. Even today in many sections of the country through which the line runs it is almost impossible to tell from a casual glance that the earth has ever been disturbed.

Pumping equipment is somewhat out of the ordinary. This marks the first application of series pumping on a line of such large capacity, according to Plantation engineers. Two pumps set up in the series are provided for each pumping station. Pumps are centrifugal type especially designed for the line.

On the 12-inch section of the main line (432 miles), pumps are direct driven at 3,600 rpm by explosion proof electric motors of 600-horsepower, the most powerful of this type ever built. Until now 500-horsepower has been considered the top limit of this type of motor.

On the 10-inch section of the main line, (351 miles) pumps are direct driven at 3,600 rpm by explosion proof electric motors of 450-horsepower.

As all motors, switch gear and controls are explosion proof, no firewalls are required in the pumping stations. Castings for all motors on both the 12-inch and 10-inch line are identical, enabling Plantation engineers to rely on only two spare motors as stand-by for failures along the 788 miles of the main line.

Corrosion survey was made for the entire 1,261 miles of pipe line, and based upon the results of this survey the pipe line was coated through those areas which indicated accelerated corrosion rates. The rates of corrosion vary in different soils and

(*Continued on page* 58)

A BUSINESS THAT HAS NOTHING TO SELL?

THE itinerant street vendor of walking dolls or mechanical mice has nothing to sell but his product, and he shapes his sales technique accordingly.

He litters the sidewalk with his maneuvering toys so that *they* may occupy attention and thus permit *him* to remain inconspicuous. If and when the toys induce a pedestrian to fish for a dime or a quarter, the vendor makes himself evident only long enough to exchange the product for the coin.

There is good reason for a street vendor to conceal himself behind his product. The temporary nature of his enterprise signals instability and warns that in the event of poor performance, replacement or redress may not be expected; the uncertain quality of the vendor, himself, makes the quality of his goods susceptible to suspicion; and so, in recognition of the fact that his doubtful institutional character will subtract from, rather than add to, the attractiveness of his offerings, the itinerant vendor wisely features his product and strives to conceal himself.

A business that lacks institutional character has nothing to sell but its product; it *must* conceal itself behind its product; it must be itinerant.

A business that *possesses* institutional character but allows it to be *obscured* by its products is somewhat above an itinerant status, yet is impermanent—because it is *dependent* on its products, and products are impermanent. Products gain and lose favor with changes in the public's habits; they are made obsolete by the invention of more intriguing products; they are outmoded by economic and technological development; and a business that gains no claim on the public's regard other than that which is represented by a product preference is impermanent.

Permanence in business is proportionate to the degree in which an institution dominates its products.

This article was written by a friend in the S. D. Warren Company of Boston, Mass. —Editor.

A business has attained a permanent status when the public concedes it honor by accepting its recommendations. The business then dominates its products; it can abandon and replace them at will, without jeopardizing its position in the market; it can gain quick acceptance for new products that it elects to offer; it can—if circumstances require—suffer the withdrawal of its products from the market, confident that its sponsorship will assure their return to favor when they are again made available.

* * *

The permanent quality of American businesses will be tested by the current war and its aftermath. The war will require manufacturers to restrict the distribution of products, or to withdraw them from commercial markets. After an indefinite period of time, in which once familiar products will have lost familiarity, businesses will arrive at the inevitable readjustment.

At that time, businesses that allowed their institutional character to remain obscured while their products were withdrawn from common use will have little claim on the public's regard. Those businesses will then have the difficult task of sponsoring their products into the favor of a public that may recall neither the products nor the sponsor.

At that time, businesses that earned and maintained the public's regard for their *institutional character* will enjoy an advantage that will speed their rehabilitation. They, too, will have the task of reestablishing their products—or of establishing new products to replace the old ones; but the task will be made lighter by the fact that the public will respect their sponsorships and value their recommendations. Those businesses will possess the basis for permanence.

A business that seeks to attain a permanent status must sell more than merely a product. It must possess a fine institutional character, and it must merchandise it so that the public becomes aware of it.

Of course, the public gains some awareness of the character of a business institution from its product, and from the manner of its dealings—and that awareness is helpful to a business; but *positive* awareness that leads to regard is not achievable by such effortless means—it can be gained only by aggressive effort that acquaints the public with the institution, with its nature and with its philosophy.

Naturally, the *nature* of the aggressive effort is a matter of some importance. The mere featuring of an institution will not, necessarily, gain it the regard of the public; printed reflections of the pride of a directorate in its own accomplishments are likely to have little interest for readers not included in the directorate; assertions of institutional virtue are commonly regarded as boastful and are dismissed lightly; exploitations designed primarily to reduce taxable income are likely to have that effect, but no other. Effort of another nature is required.

An effort to gain a merited public regard for an institution needs to be devoted to that purpose primarily; it needs to be one of interpretation and explanation; and it needs to further the interests of those to whom it is directed.

Such an effort may properly include instruction in the use of the products of the business, so that the owners of them can make them serve better and last longer. De-

(Continued on page 58)

AIRCRAFT MATERIALS TAKE TO THE AIR

RAW materials and finished parts are traveling overhead these days, relieving aisle congestion and speeding delivery, as a new materials-handling system consisting of an unique design chain-conveyor system swings into full use in the Glenn L. Martin company's bomber factories at Middle River, Md.

It is estimated that even the mile of the system already in service will save in one year the man-hour equivalent of one 24-ton Martin "Mariner" (Navy PBM-3) patrol bomber in truckers' services alone! In addition, the conveyor will lessen confusion and increase safety.

An endless procession of large trays, moving slowly along the ceiling trusses and dipping occasionally to loading and receiving stations, makes up the new development. Starting—as far as progression is concerned—at Raw Stores where incoming materials are loaded, the system delivers them at control stations in the Machine Shop and other points in detail manufacturing. From these same stations, finished parts in baskets or hampers are swung aboard the trays and soar overhead to dip again into the Finishing and Plating departments, to be relayed later to Finished Parts Stock. From these points, the parts are fed, either upon demand or on schedule, to the battery of Navy hull fixtures directly by the conveyor system or to the final assembly lines of any other bomber projects which may require service. Designers of the conveyor have estimated that 1,500,000 pounds of parts for fabrication move between detail manufacturing centers in a month. Stock for these parts leaving Raw Stores has three times the bulk of steel and carries 40 per cent more weight than the finished parts to be made, allowing for scrap losses. At least 50 per cent of this material, now transported by hand and truck, is to be assigned to the new continuous overhead monorail conveyor system.

The system has a high degree of inherent flexibility, and requires no changes in the present way of routing jobs or issuing orders. Manufactured parts, raw stock, parts for finishing and plating, requisitions for material to be delivered to the project from finished parts stocks, all are expedited by the delivery that never stops.

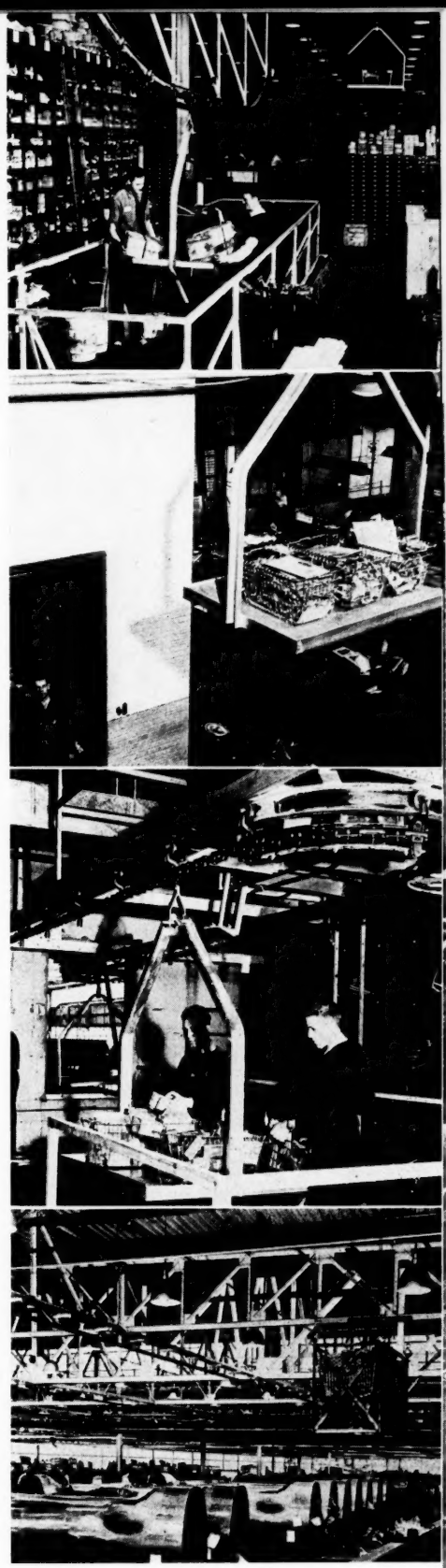
When rerouting is necessary, the attachment of baskets and of the overhead monorail may be quickly and easily altered. Additions are already being planned to augment the system and to feed to and from it.

Trays are designed to support a load of 200 pounds and sufficient clearance has been provided in the cradle to accommodate a typical load that requires two men to handle. Generally, it is expected that consignments will be small wire trays or, at the most, large hampers of small airplane parts. Destination of each consignment is easily recognized by colored card markers.

The slow movement of the trays makes it easy to load and unload them. Very low-powered motors, geared down to the rate of travel of the conveyor chain, are used.

All-out transportation for all-out production thus is represented by this latest addition to the aircraft industry's productive tools. Delays due to transportation difficulties are expected to be cut sharply. By its flexibility, this conveyor system made and installed by the Lamson Corp., Syracuse, N. Y., lends itself to the heightening tempo of bomber production.

Paralleling—in its potentialities—the same speed-up over aisle truck transport that the airlines offer in commercial traffic, the new system is expected to revolutionize old fashioned ideas of handling materials in the aircraft industry. "We preach air transport for speed, why not practice it," reasoned Martin officials.



OEM Photo

One of the owners of an Eastern manufacturing concern with a soundproof auxiliary engine cover which the company is now producing on an experimental basis along with small aircraft parts, instead of the egg poachers and frying pans which used to be made before the plant was converted to war production. The cover will enclose motors on 4-engine bombers to take care of retracting gear not connected with the main drive engine.

PLANT CONVERSION for WAR PRODUCTION

from Frying-Pans to Aircraft Parts. from Thermostats to Shell-Boosters.

In the vitally important job of all-out war production, which cannot be over-emphasized, small manufacturers can and must occupy a prominent part. Two ways in which they can participate are as individual manufacturers or as sub-contractors such as those recounted in the following article. Concerns not now engaged in war work are urged to read this story, apply the principles to their own plant and then consult their local field office of the Division of Contract Distribution.—Editor.

TWO years ago a small, ambitious manufacturing firm was grinding out aluminum frying pans, egg poachers, radio dials and control devices.

Today it has converted its machines 100 per cent to production of percussion caps, struts, flap hinges and other bits and pieces for aircraft.

Two years ago the two young owners of this firm were well satisfied with the progress made by their ompany, formed in 1937. But then came the collapse of the French and the beginning of a defense program.

It was clear that America would need tens of thousands of aircraft. Planes meant aluminum. Would there be enough aluminum for both radio devices and aircraft? That was the question they asked themselves as they reviewed their orders. Would they get enough material to keep their score or so of workers employed?

As one said the other day, "We had two ideas that we talked over. One was that there wouldn't be enough aluminum for firms like ours and the other was that we ought to help our country."

They knew they could not make complete planes or tanks in their small plant, but they had not been making complete radios, either. They had been producing parts on a subcontract basis. Why not go after defense work in the same manner? Checking lists of plane manufacturers in the East, they started out at once to see what business they could get. It wasn't easy. Subcontracts were not to be had for the asking. But by Fall it was clear that their idea was a good one.

The defense program, which first seemed to threaten this small firm, has in fact meant a great increase in business. The 1941 production of $220,000 worth of war material was double the 1940 figure, which was largely civilian. At present there is a backlog of $300,000 in orders and the firm is ready to take on additional work.

At first the concern bid only on jobs it could handle with its existing machine tools. Later, it expanded a little, adding such equipment as pipe and tube-bending machinery. Today there are forty men on the payroll; the day shift of twenty-eight works ten hours, six days a week; the night shift of thirteen works ten hours, five days a week. New employees have been selected from training schools because of their manual dexterity and have been given intensive training on their own machines.

While most of this firm's work was obtained through its own resourcefulness, several contracts were obtained with the Contract Distribution field office's assistance. Among these was an experimental order for soundproof aluminum enclosures for auxiliary motors.

The aluminum covers for auxiliary engines were designed by the firm for use on giant bombing planes. On four-engine bombers, to lighten the burden on the main motors, auxiliary engines are used to retract landing gear and for other purposes. These are covered by aluminum enclosures which, when sprayed with liquid rubber, at once protect the motor and deaden the sound.

What advice does this successful subcontracting firm give to others?

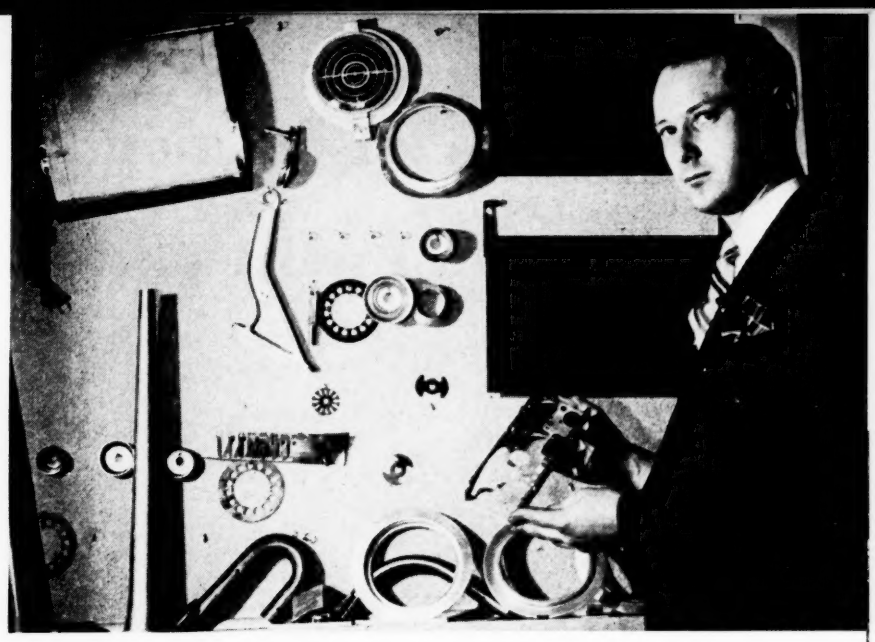
"At first bid only on products that you can make with machines you have in your shop and can surely handle. And always remember—a letter will bring you blueprints and invitations to bid, but

you will never get a contract unless you go to the plant and keep after the prime contractor. When you go, take your engineer along, too, so they know you have the goods."

The skill used in making the thermostat on your stove is now devoted to a part of the mechanism that fires an artillery shell.

An outstanding example of conversion of a peacetime factory into a war plant is the workshop of a thermometer company. Workmen skilled in the manufacture of thermometers and more particularly thermostats and oven indicators find the shiftover to shell boosters a simple one.

The booster, which looks like a simple mechanism, but isn't, consists of a small container of powder and a safety device which protects this powder against premature explosion. During the shells flight the safety device is swung by centrifugal force into a position that permits the powder to be detonated by the shell fuse and, in turn, to set off the main charge in the projectile.



Above—Instead of the aluminum photograph dryers, radio dials and similar articles for civilian use which this firm previously made they are now producing caps, struts, flap hinges and other parts for fighting planes. Below—One of the employees now making airplane parts. In peacetime this plant employed only twelve people and today more than forty are kept busy.

The manager of the thermometer division of the company, in commenting on the ease with which the firm's workers can change from peacetime thermostats to shell boosters, said the two mechanisms are not radically different and that minor problems involved are capable of easy solution because workers are skilled in precision operations.

The concern also will soon turn the skill of its workmen to the manufacture of gun sights for Air Corps .30 and .50 caliber machine guns.

Here, the conversion will be simplified by the fact the problem of making sights involves precise stamping and assembling.

To take care of the orders, the company is adding 17,000 square feet of floor space. Its new building is expected to be completed during this month, at which time the present force of employees will be doubled.

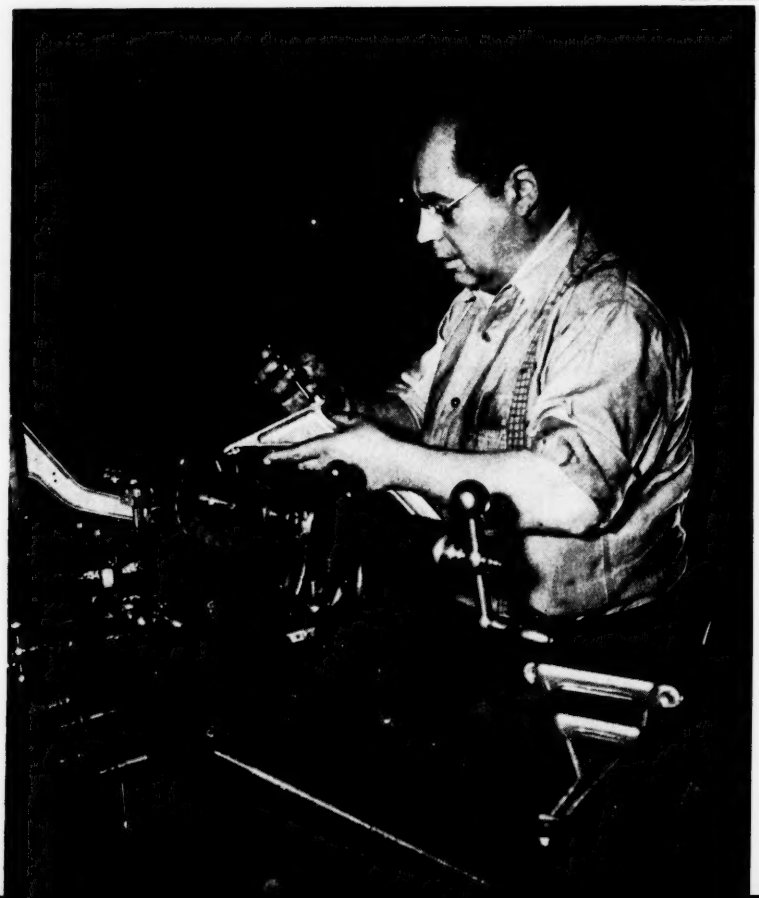
The precision phase of the work will be supervised by the firm's present staff.

The plant manager of the thermostat division says the expansion will not result in waste at the end of the war.

"We have faith enough in the future to believe that we can turn our increased facilities back to profitable peacetime work," he says.

He stresses the fact that, in addition to aiding the war effort, conversion has kept the plant operating in the face of threatened material shortages, and has kept the organization together.

OEM Photos



South's Construction Contracts Soar In First Quarter, 1942

March awards second high for any month in South's history of construction

SOUTHERN construction during the first quarter of this year has mounted far above any comparable period of previous years. Federal funds for further military expansion accounted for a large part of the gain.

Total of contracts awarded in 1942's first three months throughout the sixteen Southern states, as far as can be revealed under the code of censorship, is $931,059,000, to which March contributed the almost unprecedented monthly figure of $395,102,000. Last August led the banner construction year of 1941, and is the one month of the past that out-tops the current March.

The preponderance of newly initiated construction is being undertaken by Government agencies, both Federal and local. Seventy-two per cent of the March total is going into military construction, public housing programs to alleviate crowded conditions in defense areas, and into school buildings for the children of migrant people.

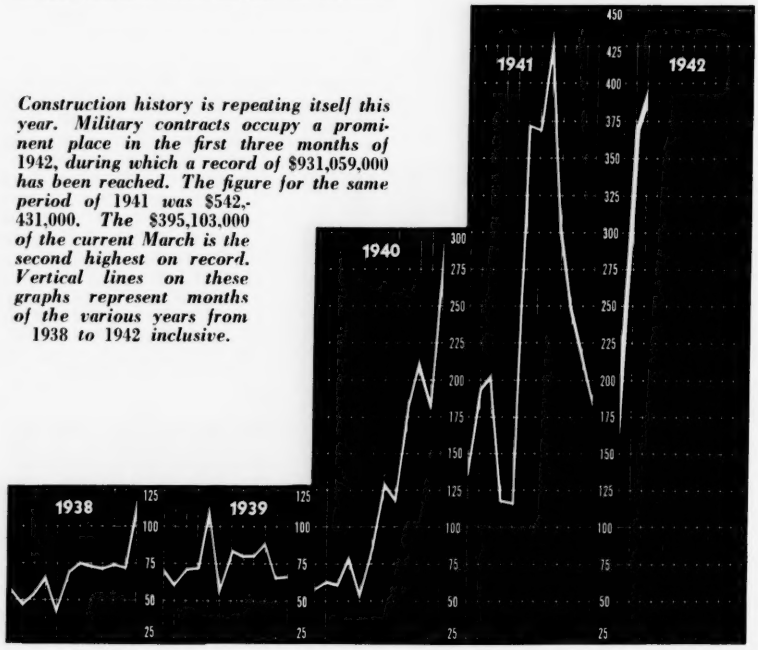
History in construction is repeating itself. Headlines of last year could readily be applied to the general trends so far in 1942. A Southern construction article published at about this same time, but a year ago, was inscribed with the title "Defense Construction Continues as Contracts Reach High for Year." It is war construction that has driven upwards this year.

The percentage of Government funds swelling the total of all construction, exclusive of many industrial operations which are Federally-sponsored, is more than 78 per cent of the total for the three months; over 85 per cent for the month of March. A year ago these ratios were 34 per cent for the three months; 37 per cent for March of 1941.

Industrial awards so far this year total $149,256,000. The comparable period of 1941 was credited with much more than twice that figure. Some industrial projects apparently are after-thoughts of the defense program. They are the ones that were deferred in last year's rush to provide factories for producing war equipment and supplies.

South's Construction by Types

	March, 1942 Contracts Awarded	March, 1942 Contracts to be Awarded	Contracts Awarded First Three Months 1942	Contracts Awarded First Three Months 1941
PRIVATE BUILDING				
Assembly (Churches, Theatres, Auditriums, Fraternal)	$363,000	$979,000	$1,929,000	$5,301,000
Commercial (Stores, Restaurants, Filling Stations, Garages)	904,000	450,000	2,611,000	5,758,000
Residential (Apartments, Hotels, Dwellings)	15,636,000	5,705,000	44,103,000	24,855,000
Office	180,000	115,000	572,000	1,180,000
	$17,083,000	$7,249,000	$49,215,000	$37,094,000
INDUSTRIAL	$39,790,000	$303,973,000	$149,256,000	$320,929,000
PUBLIC BUILDING				
City, County, State, Federal	$235,746,000	$293,776,000	$494,511,000	$86,031,000
Housing	45,119,000	39,479,000	80,200,000	39,019,000
Schools	5,380,000	15,964,000	11,789,000	6,858,000
	$286,245,000	$349,219,000	$586,500,000	$131,908,000
ENGINEERING				
Dams, Drainage, Earthwork, Airports	$14,282,000	$165,233,000	$83,881,000	$15,124,000
Federal, County, Municipal Electric	6,891,000	18,425,000	8,687,000	5,379,000
Sewers and Waterworks	11,936,000	41,122,000	19,430,000	3,208,000
	$33,109,000	$224,780,000	$111,998,000	$23,711,000
ROADS, STREETS AND BRIDGES	$18,876,000	$11,178,000	$34,090,000	$28,789,000
TOTAL	$395,103,000	$896,399,000	$931,059,000	$542,431,000

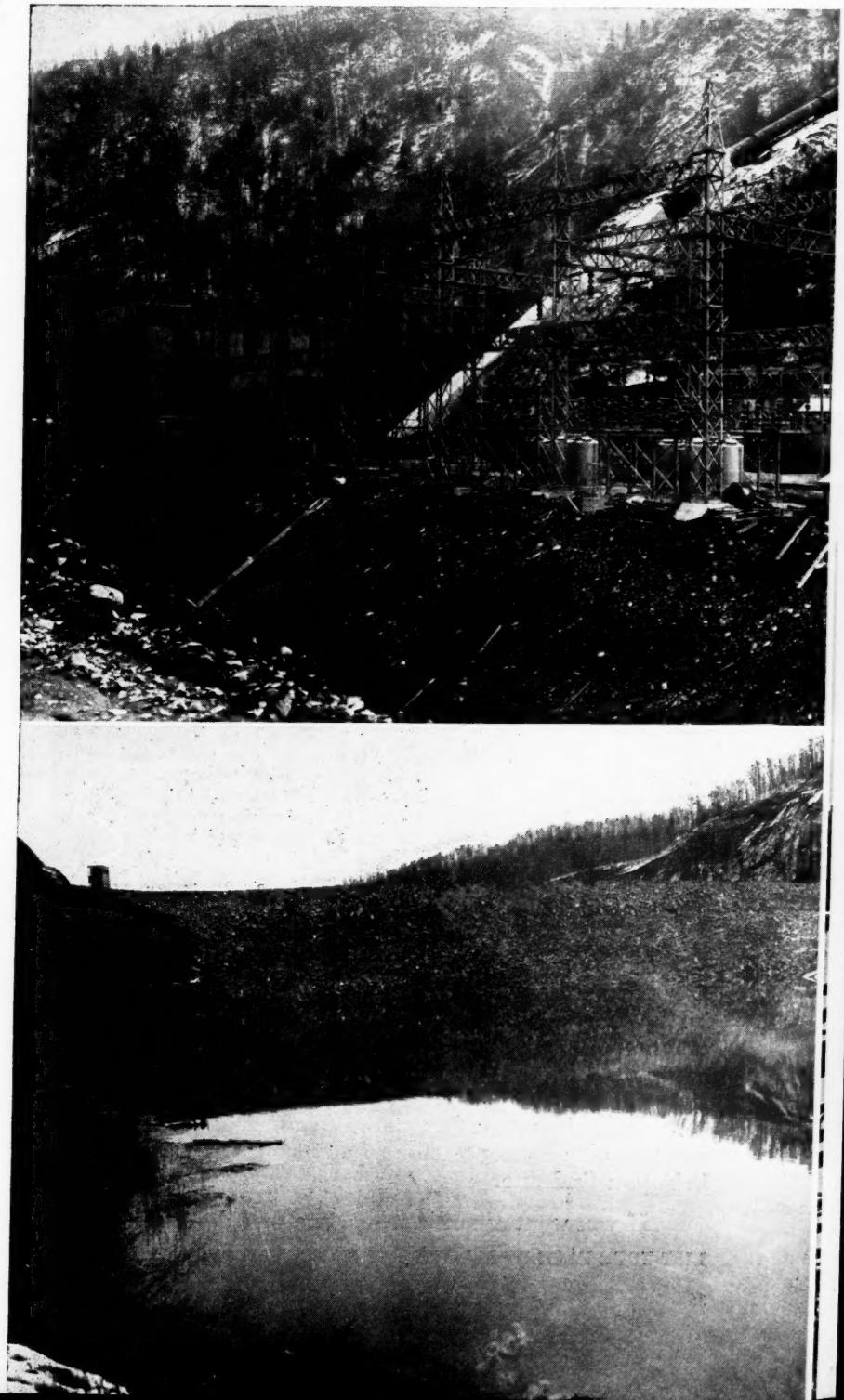


Construction history is repeating itself this year. Military contracts occupy a prominent place in the first three months of 1942, during which a record of $931,059,000 has been reached. The figure for the same period of 1941 was $542,431,000. The $395,103,000 of the current March is the second highest on record. Vertical lines on these graphs represent months of the various years from 1938 to 1942 inclusive.

The stress now is more on production than on establishing new plants, with the exception of those essential facilities to turn out materials of which shortages exist. This is evidenced by comparisons of the figures for this and last March and for the first quarters of 1942 and 1941. During the current March, industrial construction contracts in the South totaled $39,790,000. The same month of last year saw awards amounting to $118,568,000. Industrial construction contracts for the first quarter of 1942 are placed at $149,256,000. In the similar period of 1941 the total reached $320,929,000.

Private construction is up, although the prospects in all but the residential field in military and war production areas shrink from month to month. Private building awards for the first three months total $49,256,000, as compared with the $37,094,000 of last year. Residential awards in the 1942 period total $44,103,000; in the 1941 period, $24,855,000. March private building totals were $17,083,000, of which $15,636,000 was for residential work, in 1942; $10,487,000, of which the amount for residential awards was $6,941,000, in 1941.

Highway and bridge awards are also stronger. More recognition is being given to the necessity of access to production plants and military reservations. Many of the projects are of a nature to relieve conditions, which in many cases are locally beneficial. Statistics on the highway situation are: Awards for the first three months of 1942, $34,090,000; for the comparable period of 1941, $28,711,000. For March, 1942, the figure is $18,876,000; for March, 1941, $10,899,000. Encouraging acceleration is seen in these totals.



Power plant construction begun in July, 1940, is shown in its last stages as work approaches completion on the Nantahala dam and power plant of the Nantahala Power and Light Co., subsidiary of the Aluminum Company of America. Second of two such projects to harness waters surging through western North Carolina's deep mountain gorges, Nantahala dam is the highest rock and earth fill east of the Mississippi River. It rises 250 feet above the bed of the Tennessee River, across which its stretches for nearly 1,100 feet. It is a thousand feet thick at its base. Drainage from a 90-mile area is shown being impounded behind the huge rock pile in the lower photograph. When generating operations are started, the plant shown in the upper picture will produce enough power to add 25,000,000 pounds of aluminum to the output of the Aluminum Company's reduction works plants in Tennessee. The Francis-type reaction turbine weighing about 200,000 pounds, will develop 60,000 horsepower when operating under the rated 925-foot head. It is direct-connected to a General Electric unit which will transmit the power 19 miles to the Santeetlah powerhouse. The power plant and dam of the Nantahala project are connected by over five and one-half miles of pressure conduit, which leads the water down through the mountains to the turbine. There are two unlined tunnels through rock. One is 9,922.1 feet long; the other, 18,706.6 feet. A 573-foot run of steel pipe joins these tunnels at Dick's Creek crossing. The water drops from the last tunnel to the powerhouse through a 1,247-foot steel pipe penstock, which is shown in the background of the power plant illustration. Utah Construction Co., Boulder and Grand Coulee dam contractor, is the builder. Newport News Shipbuilding & Dry Dock Co., of Newport News, Va., is builder of the turbine. Chicago Bridge & Iron Co., Chicago, Illl., furnished and erected the steel pipe. Statistics on the project include: Lake area, 1,631 acres; maximum head, 1005.5 feet; drawdown; 130 feet; cubic yardage of materials; 2,200,000; length of pressure conduit, 29,471 feet; man-hours required for construction, 3,773,756 (estimated).

SUB-CONTRACTORS WANTING WAR WORK

—o—

I-4. Stove Manufacturer

Tool room equipment: planer (Whitcomb) 24″ x 6′ x 24″; shaper (Milwaukee) 16″ x 24″; engine lathe (Rockford) 14″ x 3′; No. 1 Kempsmith universal mill—22″ long—cut 9″; drill press (Federal) back geared—10″ column to center; drill press (Canedy-Otto) back geared—10″ column to center; drill press (W. A. Barnes) back geared—7½″ column to center; drill press (Avey 8″ column to center—3 spindle.

Punch presses: No. 1 open back punch press—5″ die space—1½″ stroke; three Loshbough & Jordan No. 3 open back inclinable—6¼″ die space—2½″ stroke—bed plate 12″ x 21½″; Consolidated No. 3 open back inclinable—6″ die space—2″ stroke—bed plate 12″ x 20″; Consolidate No. 164A straight side double crake—6¼″ die space—6″ stroke—bed plate 41″ x 41″; Bliss Consolidated No. 4 open back inclinable—7″ die space—2½″ stroke—bed plate 13″ x 25″; Bliss No. 5-38 straight side back geared—double crake with cushion— 9″ die space—4″ stroke—bed plate 37″ x 30″—approx. 240 ton capacity; Niagara No. 6 open back inclinable—7¾″ die space—3″ stroke—bed plate 21″ x 28″.

Power shears: Niagara No. 162 power squaring shear—62″ cut; No. 162 Niagara power squaring shear—62″ cut; No. 152 Niagara power squaring shear—52″ cut; two No. 142 Niagara power squaring shear—42″ cut; No. BLIO Niagara power squaring shear—120″ cut.

Power press brakes: Dreis & Krump 50″—6″ die space—2″ stroke; Dreis & Krump 8 ft., 6½″ die space—2½″ stroke; Dreis & Krump 6 ft. 4L6—6½″ die space—3″ stroke; Dreis & Krump 6 ft. No. 335 6″ die space—2″ stroke.

Hand brakes: 4 ft. finger brake; 6 ft. finger brake; 30″ hand brake; 30″ hand folder.

Welding equipment: Thomson-Gibb 40 KVA; Thomson-Gibb 12 KVA; Thomson-Gibb 20 KVA; Thomson-Gibb 22 KVA; A. E. F. stationary welder—10 KVA; Thomson-Gibb spot welder—10 KKVA; Taylor Winfield portable welder—35 KVA; A. C. type arc welder—transformer type—1 amp. to 155 amp. capacity; two Rego acetylene welding and cutting set.

Ovens—batch—gas fired up to 500°: two 5′ x 7′ x 15′; 5′ x 7′ x 12′; batch trucks on overhead trolley.

AN EDITORIAL

In such a situation as the one we now face, the most critical of our existence, the necessity for all-out production of war materials cannot be over-emphasized. But just as those materials are valueless unless employed by wise military leadership so too are they valueless unless produced in sufficient numbers and quickly enough. To do the latter requires just as able leadership, thought and understanding as that which directs our armies. This is no time for arguing or indulging in petty factionalism. The existence of you and me or your firm and my firm is of no consequence whatsoever. We have one job and one job only—that of winning this war and safeguarding our children from a form of existence that denies the freedom of the individual. But if we are going to do this, either we have got to make changes in Washington or educate those that now occupy positions of authority. This is a plain statement of fact.

The Bureau of Research and Statistics of the War Production Board has made it evident, statistically, that the majority of supply contracts have been awarded to a handful of firms, and everywhere one turns there is proof of the fact that those in charge of purchasing and constructing can think only in terms of big business. A large number of the business men who have been called to Washington are indeed big business men, nationally known. But, to a large degree, such individuals know little of specific industrial procedures. They are business executives and, as such, are capable of directing the business operations of almost any type of business. A man may be a genius at directing and controlling the affairs of a huge concern but the chances are he has

(Continued on page 37)

Blakeslee degreaser, model V. P.—vapor type using trichlorethylene—gas fired—4′ x 8′ x 40″ together with booths, pressure and gravity tanks and other equipment.

N-3. Iron Works

Whitcomb Blaisdell planer, double head 30″ x 30″ x 10′0″; D & H Open Side planer, 20″ x 30″ x 6′0″; #1 shaper; #2 shaper; #3 shaper; Crane pipe threader, 2½″ to 8″; Crane pipe threader, ⅜″ to 2″; 300-ton power wheel press; 100-ton power wheel press; 500-pound hydraulic pressure pump; milling machine for keywaying, to 5″ diam.; vertical slotter; bolt machine, ⅝″ to 2″; five drill presses, ⅛″ up to 2½″; 30″ grind stone; two double emery wheels; gear cutter, 5 pitch to 30″ diam.; Kalamazoo power band metal saw, 8″ to 14″.

Boiler shop: two punch and shears, throat 38″, punch 15/16″ holes; bending roll, 8′0″—⅝″ plate; bending roll, 5′0″—¼″ plate; two coal fired forges; oil rivet heater (any size rivet); oil tire remover (any size tire); serpentine shear, ¼″ plate; metal brake, 8′0″; floor slab for angle bending, 48″ x 20′0″; 4″ tube cutter; Blaisdell 10 x 10 air compressor; portable air hammer and drills (3 of each size); water pump; 20 h. p. steam boiler; jaw riveter, 6′0″—¼″ x 1″ rivets; hand shear, ¼″ plate.

Electric and acetylene welding shop: 300 amp. Lincoln welder; 150 amp. Westinghouse welder; two 220 amp. gasoline driven portable welders; Mogul metallizing outfit; lathe for use with metallizer, 16″ x 6′0″; three Oxweld acetylene torches; special acetylene flame cutter for circles and shapes; sand blasting outfit.

Pattern shop: band saw; circular saw; planer; double purpose lathe; saw filer; hand trimmer; grind stone; 100,000 patterns.

Padrick boring bar, 5′0″ diam. x 10′ lgth.; boring bar, 12″ x 6′0″; emery lathe grinder, 110 volt; three Thor portable electric drills, to ¼″; Schramm portable air compressor; McCabe lathe, 54″ x 20′6″; Putnam lathe, 36″ x 20′6″; Skinner lathe, 30″ x 21′6″; Rand & Carpenter lathe, 20″ x 7′6″; Cincinnati lathe, 18″ x 8′6″; South Bend lathe, 12″ x 4′4″; Sellers lathe, 96″ x 11′6″.

Forge shop: air hammer (formerly steam hammer); two forges; full set blacksmith tools.

Foundry: 31″ cupolo, maximum capacity 5000 lbs.; 20″ cupolo; brass furnace, capacity 400 lbs.; two core ovens; ladles, tools and flasks complete.

Five-ton crane; two two-ton cranes; ample hand trolley cranes for serving lathes and presses.

I-3. Pre-Finished Metals

D. C. electroplating generators—6V—45,000 amps.; 14 sheet buffing machines; 11 coil buffing machines; square shears (2—8 ft.—16 gauge; 1—4 ft.—16 gauge); rotary shears (1—#1 Waterbury Farrell; 2—16 gauge—24″); grinders for engravers plates (4 Weisbecker machines); combination sheet and coil lacquering unit; crimping machines (1—3/16″ crimp—50″ face rolls; 1—7/16″ crimp—38″ face rolls); nickel solutions (approximately 14,000 gals.); copper solutions (cyanide) (approximately 8000 gals.); chromium plating solutions (approximately 5500 gals.); brass plating solu-

The facilities listed here are those of plants desirous of executing subcontracts for war material. Others were printed in the February and March Manufacturers Record and still others will be listed as they are received. If you are making equipment or supplies under government contract and possibly can use the services of any of these plants under a subcontract, write us for the name and address, or if you *need* the services of a subcontractor of any kind write us and we will help you find one.

If you want a contract—prime or sub—write us.

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tions (cyanide) (approximately 2500 gals.); Hallden 26" leveler and automatic shear; scoring machine.

F-4. Metal Products Manufacturing

175-ton press brake; 50-ton punch press; 36-ton punch press; 22-ton punch press; 6-ft. Niagara shear; two 4-ft. (center to center) lathes; two drill presses; circular saw; band saw; three grinders; two electric spot welders; two arc welding machines; complete paint spraying paint shop with bake oven up to 800°.

F-3. Fabricator

Three foot presses; small turret lathe; grinder head wood base; wood miller saw; four way machine; swivel closer and shot splitter; leader winder; block line winder; small drill press stand; five drill presses with ½" capacity; large engine lathe; two small lathes (thread cutting); large drill press ½"; leader wire coiler 25' (6"); cork turning lathe; sanding machine belt; small production drill-bench drill; cork steming press; tumbling barrel; ¼ lb. leader wire coiler (8"); two buffing heads; grinding head on base; press for inserting eyes in bait; cutting off machine (sinkers); stapler machine; saw (small for sawing rings); shaper machine, metal; cork forming machine-grinding; foot press for putting in eyes in metal bait; paint dip machine; forming planer; two spindle lathe; wood shaper; automatic wire straightener and cut off; speed lathe 6" throw; wood turning lathe; electric welder; two band saws 10"; lead mould furnace; one complete nickle and chrome plating room; one complete spray painting room; two small spray guns; two large spray guns; Hobart 150 ampere motor driven generator; Hobart 300 ampere motor driven generator; forty electric motors of various sizes; 35-ton power press; 15-ton power press; 10-ton power press; factory of three stories, 15,000 square feet of floor space.

TS-1. Auto Supply Manufacturers

Black & Decker valve refacer, 9/16 Type W; Sunnen pin hole grinder, model "L"; Kent Moore drill press, No. "K"-12; Hickok "Avr" electro check generator & regulatortes weaver arbor press; Black & Decker grinder & buffer; South Bend "9" workshop lathe, bench type, "9" swing-4' bed; 1—4 jaw independent chuck; 2—½" universal chucks; complete set thread cutting gears; Weidenhoff armature undercutting machine, 2' bed —9" swing; Kwik-Way cylinder boring bar, cap 2⅝" to 6"; lathe-Price-Hollister "Jumbo" hydraulic press—60 ton cap. Manley Mfg. Co.; Bonney torque wrench #66; Allen "A. C." arc welder, type "E" 270-230v-60cy.; AC spot welder, type "E" 296; Smith-type D portable automatic acetylene generator with two Smith portable torches; Black Hawk Porto-Power Jack model No. p-16-7 ton cap.; three heavy duty Van Dorn 7" sanders; small grinder Van Dorn 6"; Walker Turner band saw, size 14"; 6" Delta jointer; 10" Walker Turner rip saw; Walker Turner shaper; "Somaca" electric sealing pot & burning out tool; glass edger & polishing machine bench type; ½" heavy duty Black & Decker drill; three ¼" heavy duty Van Dorn drills; Kent Moore Chevrolet main bearing line reamer.

Paint shop: Three Binks spray guns, Thor model; Devilbiss air regulator; hydraulic car lift (Globe Hoist) 8,000 lbs. cap.; three Walker car jacks, 2½ ton lift (mechanical); three Walker car jacks, 2½ ton lift (hydraulic); Walker car jack, 7½ ton lift (hydraulic); Walker car jack, 4 ton lift (hydraulic); Brunner 4 cyl. compressor; Hobart 200 amp. 7½ volt. bat. charger; 120 ft. overhead track & two trolleys (cap. 6,000 lbs.); 20 ft. overhead track & one trolley & casin hoist.

I-2. Metal Mouldings

Punch presses: Three 14-ton Walsh #2, 2½" stroke, 10¾ x 16⅞" die space; four 14-ton Marshalltown #2, 2½" stroke, 10¾ x 16⅞" die space; three 14-ton A. B. White #2, 2½" stroke, 10¾ x 16⅞" die space; two 22-ton Marshalltown #3, 2½" stroke, 13 x 20" die space; two 10-ton LaSalle #1, 2" stroke, 13 x 20" die space; two 10-ton #1, 2" stroke, 13 x 20" die space; one 5-ton Marshalltown #0, 1½" stroke, 7¼ x 12½" die space; one 14-ton Zeh-Hannemann #2, 2½" stroke, 10¾ x 16⅞" die space.

Rolling machines: Nine 9-spindle, 1¼" shaft; one Tishkin 10-LM, 1¼" shaft; one automatic cutoff Tishkin, 2-L.

Two R. B. Annis spotwelders #39; American electric fusion spotwelder, B. H. 12; Pier Equipment Company spotwelder #62.

Tool room equipment: Two Gould & Eberhardt shapers, 20" stroke; Van Wyck lathe, 15"-24" center; two Monarch lathes, 14"-24" center; Atlas lathe, 10"-14" center; two power hack saws, 16"; Charles G. Allen hand drill press; United States machine; Brown & Sharpe milling machine #2A; Reid Bros. surface grinder; acetylene welding unit; Bellevue industrial furnace #111.

Buffers: Six Belke model (500-buffers); Charles L'Hommedieu (215-buffers); two Charles L'Hommedieu (20-buffers).

Miscellaneous production equipment: A. H. S. Mfg. Co. hand drill press; two Delta hand drill presses; Delta grinder, #705-2222; Sears & Roebuck sander, #102-08700; Wood Wizard band saw, 12"; Delta circular saw, #304; two circular saws; hand brake, 60". Can roll shapes of aluminum alloy strips 5" x .125 maximum for simple shapes like angles, channels, and zee bars; intricate shapes of 5" x .050 maximum. Experience with 2-S, 3-S, 5-S, 52-S, 17-ST, 24-SO, 24-ST, and 24ST alclad. Can also roll from strips of heat treated aluminum sheared from sheets. Most flat stampings not longer than 13", wider than 6" to 8", and thicker than .050 to .062" can be handled. Larger stampings can be handled dependent upon thickness and other data. Will consider any type of sheet metal fabrication or assembling and tool and die work. Accustomed to working as closely as plus or minus .055" and our range is on a basis of strip stock used from 5/16" wide x .010 to a possible maximum under current methods of 5" wide x .090 on simple shapes and 5" wide x .050 on intricate shapes.

N-2. Elevator & Machine Mfrs.

Fitchburg lathe, 34" swing, 96" center to center; South Bend lathe, 9" swing, 36" center to center; Putnam heavy duty engine lathe, 33" swing, 5'0" between centers; U. S. lathe 21" swing, 48" between centers; Roulsted lathe, 21" swing, 50" between centers; Hendey lathe, 18" swing, 48" between centers; Bickford radial drill, radius of work 42"; Mitts & Merrell #3 keyseater; Adams gear hobbing machine, 28" capacity; Hendey shaper No. 3; Hendey No. 2 B universal milling machine; 3 Barnes drilling machines; G. A. Gray heavy duty planer, capacity 36" x 36" x 8'0"; horizontal hydraulic press 150 ton capacity; Brown & Sharpe tool grinder; Hendley & Whittemore punch and shear No. 54; Jarecki No. 7 bolt threader; Wells metal cutting band saw, type 8-M-40; Hobart electric welding equipment, 300 amps.; acetylene welding equipment; miscellaneous electrical drills, grinders, punches, shears, and shop equipment.

G-3. Furniture & Cabinet Maker

Alexander Dodd Company 16" cut-off swing saw, max. cut 4" thick; Rechtin 12" cut-off swing saw, max. cut 2" thick; DeVilbiss air compressor, water cooled, 100 lb.; Mattison rip saw, self-feeding, overhead cutter, chain bed; Falls 20" jointer, material surfacer; Whitney 30" round head planer,

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AN EDITORIAL

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never bought an ounce of the raw materials that company uses; he may never have made any of the products; and it is doubtful if he has ever sold one. Is such an individual really capable of directing the production of a vital industry at such a time as this? Actual instances such as this condition are frequently cited. But that is not all.

Industries essential to the war effort are being organized into what are virtually cartels. It might conceivably be argued that such procedure is warranted at the present time were it not for the fact that no organized group could possibly be truly representative of any *entire* industry. Industries do vary considerably but a large part of almost every industry is made up of small firms which are completely outside of any organization. Maybe some of these firms lack the necessary equipment. Perhaps some lack initiative, are unwilling to make changes or expect the work to be dropped in their lap. All of that, and perhaps more, may be true but we come back to the inescapable fact that we face a production schedule such as we have never faced before and it will require our full, united effort *and capacity*.

If we assume that "small businesses" are those plants with an annual output not exceeding $500,000, then the total number of them in this country is 165,950 or more than 90 percent of all manufacturing establishments. They employ 2,514,132 wage earners or about 30 percent of all wage earners engaged in manufacturing and they produce goods valued annually at $12,393,017,598 or nearly 25 percent of the national total. If the firms with an output of less than $1,000,000 were included, the total value would be close to half the national output. Furthermore, while this is true of manufacturing as a whole it is likewise true of most individual industries. That being so, there can be no question as to the vital necessity for utilizing these firms' resources.

But are the resources of these plants being used? Some of them are but *many* are not. In this issue, as in the last two issues of the MANUFACTURERS RECORD, are listed the facilities of firms anxious and willing to do their share. Their efforts and willingness appear pathetic in the way they are ignored.

Recently, there was held in Washington a meeting of the Smaller Business Advisory Council or Small Business Men's Committee. It was addressed by one of the War Production Board's division chiefs. These men were given the impression that the Government was unconcerned about their future and the part they might play in the national program. This attitude is definitely wrong and is evidence of ignorance as to the importance of so-called small business.

New plants are being erected and large ones expanded in a construction program estimated to approximate $3,500,000,000 during the ensuing year. Why ignore the small plants in existence and cause finan-

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horizontal top cutter; H. B. Smith 9" molder, 4 cutter heads, any type mold; Beach 16" trim saw, single carriage; American combination saw, will rip, trim, miter, bevel, dado material of most any size; Wilkins-Challoner 16" sticker, bottom and top heads 4" wide, small molding; H. B. Smith tenoner, single end, 20" material; H. B. Smith chisel mortiser, vertical reciprocating; New Britain chain mortiser; Whitney shaper, vertical spindle; H. B. Smith chain bed drum sander, overhead drums, 48" width; H. B. Smith band saw, 36" wheels; Falls glue jointer, right and left-hand feeds; Dodd 20" vertical dove tailer, vertical cut, horizontal cut or both together; Bell 60" x 84" frame clamp, hydraulic type; Billstrom clamp carrier, swing type, material up to 31" x 12' 0"; Francis overhead screws glue press, mat. 42" x 12' 0"; Mattison vertical belt sander, horizontal type; Richtin 14" jig saw; Lange 30" glass grinder, horizontal type; Lange 28" glass polisher, horizontal type; Lange glass edge dresser; Lange glass groover; two Devilbiss spray booths, floor type, 4 fan direct exhaust; Grand Rap. vapor kiln dry kiln, capacity, 15,000 ft.; Schofield boiler, return tubular, heats plant and operates kiln.

MA-2. Metal Containers

Slaysman & Co. #3A open back flywheel inclinable press—1¾" stroke—7½" opening through back—7½" throat—21" x 3" flywheel; E. W. Bliss Co. #1 open back flywheel inclinable press—2" stroke—7" opening through back—5½" throat—24" x 3½" flywheel; Callahan Can Machine Co. model 34A foot power operated forming press—4" stroke; E. W. Bliss Co. #16 flywheel horning and wiring press—1½" stroke—5" throat—22" x 3" flywheel—with horn; two E. W. Bliss Co. #39 horning and wiring flywheel presses—2" stroke—8¼" throat—18" x 15" adjustable knee table—with slide plate for wiring—26" x 3½" flywheel; Horning and wiring flywheel press—equipped with horn ..1½" stroke—5" throat—14" wide x 11" deep adjustable knee table—21" x 3¼" flywheel; Adriance Machine Co. #23 horning and wiring flywheel press—equipped with horn—2" stroke—6" throat—14½" wide by 13" adjustable and swinging knee table—28" x 4" flywheel; two Slaysman & Co. #3A open back flywheel inclinable presses—1¾" stroke—7½" opening through back—7½" throat—21" x 3" flywheel—foot clutch control; E. W. Bliss Co. #19 open back flywheel inclinable press—2½" stroke—7¾" opening through back—4½" throat—with 1921 clutch base connection cap slide—26" x 3½" flywheel; E. W. Bliss Co. #19 open back inclinable press—2½" stroke—7¾" opening through back—4½" throat—1921 clutch base connection cap slide—26" x 3½" flywheel; E. W. Bliss Co. #21 ½ open back flywheel inclinable press—3½" stroke—13" opening in back—32½" x 22½" x 3" bolster—10½" throat—45" x 5¼" flywheel; McDonald Mach. Co. #31EC automatic open back inclinable punch press—4" stroke—8" opening through back—8¼" throat—32" x 5" flywheel—complete with the following equipment—one #1—40" long pneumatic strip feed—type #—de mountable—4 fingers, one #3G adj. curling machine—for 6⅝" dia. can ends, one extra inside ring and disc for 3⅜" dia. can ends, one extra inside ring and disc for 4³⁄₁₆" dia. can ends, one #3B adj. die and stacker, with drive connections, 6⅝" dia. cap., two curler pulleys, three change gears, one special steel chute, eight brass punch strippers for 4¾" to 7¼" dia. can ends; McDonald Mach. Co. #31EC automatic open back inclinable punch press—type 31-EGF—4" stroke—8" opening through back—8½" stroke—32" x 5" flywheel—complete with 4' long pneumatic 4-finger strip feed; E. W. Bliss Co. #19C open back flywheel inclinable press—2½" stroke—9½" opening through back—6½" throat—26" x 3¾" flywheel; E. W. Bliss Co. #21 open back flywheel inclinable press—3" stroke—4" opening through back—9" throat—28" x 19" x 2½" bolster—36" x 5¼" flywheel; E. W. Bliss Co. #21 open back flywheel inclinable press—8" throat—2½" stroke—36" x 5" flywheel; E. W. Bliss Co. #21 open back flywheel inclinable press—2" stroke—7½" throat—13½" opening through back—36" x 5¼" flywheel; E. W. Bliss #21 open back flywheel inclinable press—3½" stroke—13½" opening through back—11½" throat—36" x 5¼" flywheel; Perkins Mach. Co. single back geared straight side single crank press—5" stroke—26" opening between uprights—26" x 26" bed—48" x 7" flywheel; E. W. Bliss Co. #21 open back inclinable flywheel press—9½" throat—3" stroke—14" opening through back—27½" x 19" x 2½" bolster—36" x 5" flywheel; E. W. Bliss Co. #21 open back inclinable flywheel press—9½" throat—3" stroke—14" opening through back—27½" x 19" x 2½" bolster—36" x 5" flywheel; E. W. Bliss Co. #3 geared straight side double crank press; Slaysman & Co. #3A open back flywheel inclinable press—2" stroke—8" throat—7¾" opening through back—20" x 3¼" flywheel; E. W. Bliss Co. #119 ½ open back inclinable press—4" stroke—9" opening through back—7½" throat—30" x 4½" flywheel; F. S. & G. L. Brown Mach. Co. open back flywheel inclinable press—2" stroke—7" opening through back—4½" throat—24" x 3" flywheel; E. W. Bliss Co. #20 open back flywheel inclinable press—2" stroke—10" opening through back— 5¾" throat—34" x 5¼" flywheel; Slaysman & Co. open back flywheel inclinable press—3" stroke—13" opening through back—12" throat—27½" x 18" bolster area—36" x 5¼" flywheel; E. W. Bliss Co. #20 open back flywheel inclinable press—2" stroke—10" opening through back—5¾" throat—34" x 5¼" flywheel; Stevenson & Co. #4 open back flywheel inclinable press—2" stroke—9½" opening through back—7⅞" throat—24" x 3½" flywheel; Southworth Mach. Co. 28" x ½" stroke Portland multiple punching press—15" x 3½" flywheel—pulley drive; Colt's Patent Fire Arms Mfg. Co. 20" x 30" Colt's Armory cutting and creasing press 36" x 4" flywheel; John Thomson Press Co. 26" x 38" style #2 eccentric action cutting and creasing press—30" x 6" clutch flywheel; National Mach. Co. 20" x 30" press—two 34" x 3½" flywheels; E. W. Bliss Co. #16 wiring and horning press—1½" stroke—5" throat—21" x 3" flywheel—with horn and 16" x 10" adj. table; Samuel C. Tatum Co. 30" wide cap. power driven multiple press—equipped with three 10" throat punches—18" x 3" flywheel; Standard Machy. Co. #58 bench press; Edwin B. Stimpson Co. #10 Stimpson foot operated patent rivet machine; Edwin B. Stimpson Co. type R-246 roadway complete for B-264—³⁄₁₆" split rivets; Toledo Mach. & Tool Co. #416D—42" power squaring shears—belt drive—24" x 3½" tight and loose pulley drive; Dreis & Krump Mfg. Co. #33 hand power pan brake—8" long fingers; Peck, Stow & Wilcox Co. #055D—36" bench type hand operated folder—5⁄16" locks—20 gauge cap.; Peck, Stow & Wilcox Co. #159-C—32" foot power squaring shears; Peck, Stow & Wilcox Co. 22" foot power squaring shears; Peck, Stow & Wilcox Co. #30B foot power squaring shears—32"; Complete equipment for manufacturing round metal containers on automatic and semi-automatic lines and complete machinery for lithographing on metal, including coaters and lithographing presses.

MA-3. Stove Manufacturer

Mounting Shop: One drill press, single spindle, 13/32"; drill press, double spindle, ³⁄₁₆"; drill press, single spindle, 1"; drill press, single spindle, ⁹⁄₁₆"; drill press, single spindle, 1½"; lathe, special for stove work; bake oven, gas fired, for japanning.

Foundry: One 36" cupola, 5-tons per hour; 20" cupola, 1-ton per hour; electric hoist, 1500 pounds; large air compressor; small air compressor; 1" pipe threading machine (Murrill); small sandblasting machine; two mill tumblers; blacksmith forge, complete; ¼" cutter.

Sheet Metal Shop: One 12' sheet shear, ¼"; two power punch presses, ³⁄₁₆" metal; 36" power shear, #10 Ga. metal; 52" power shear, #18 Ga. metal; two #18 Ga. punch presses; 8' power brake, ³⁄₁₆" metal; large draw and forming and cutting press #14 Ga.; bench hand cutter, ¼ metal; quick work cutter, 60" throat; #14 Ga.; power punch, ³⁄₁₆" metal; electric spot welder, 28" throat, two 3-gauge pcs.; also a large number of snap and floor flasks.

O-2. Body & Trailer Manufacturer

Metal working machinery: Pells power driven combination punch and shear punch ¾" hole—½" plate—shear 7/16" plate; 16-gauge peck-stow-gap shear; Dies & Crump 14-gauge 10' hand brake; Hossfield universal shape bender; Lenox 16-gauge rotary sheet metal shear; ⅛" Walker Turner rip saw (sheet metal).

Wood working machinery: Corker 12" power rip saw; Cordesman Meyer & Co. wood shaper—motor driven; 36" band saw—motor driven; 8" Norfield jointer—2 h. p. motor; 24" Berlin planer—10 h. p. motor; 14" swing cutoff saw—1½ h. p. motor; 4" belt Walker-Turner sander; Walker-Turner double head grinder—10" wheel.

Welding equipment: three 200-amp. Lincoln motor generator sets; three 200-amp. Wilson motor generator sets; 150-amp. Wilson motor generator set; 200-250-amp. Wilson motor generator set; 10 kw. Dyer electric spot welder; seven acetylene cutting and

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cial chaos in their midst while expanding large plants which will cause post-war industrial inflation? This post-war situation is tacitly admitted by the Government in its financial underwriting of many large plants expansion now. Even more important, however, is that by ignoring or almost ignoring small plants and building or expanding large plants, time is wasted, materials are duplicated or wasted, equipment is duplicated or wasted and productive labor remains idle.

No, this is no time for destructive criticism but it is essential to point out obvious truths and try to show those in authority some of the things which it is rather astonishing to find they do not know already.

War Contracts and Allocations to Southern States Increase $1,038,689,000 During February

War contracts and allocations distributed by government agencies to the southern states for the period June 1, 1940 through February, 1942, totaled approximately $9,387,579,000 compared with $8,348,890,000 at the end of January, 1942. This represents a gain of $1,038,689,000 or almost 12.5 percent during February. Totals by state and by government agency for the entire period are shown in the accompanying table.

Major War Supply and Facility Contracts and Allocations, June, 1940, Through February, 1942

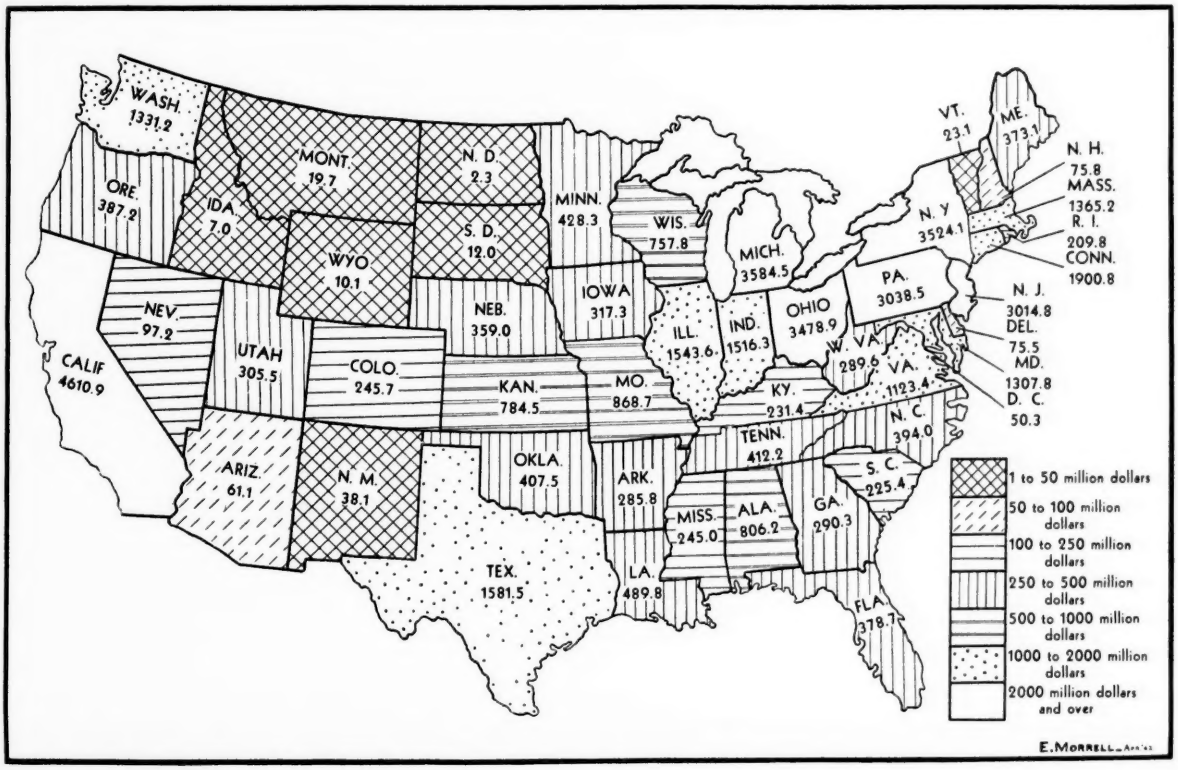
(Thousands of dollars)

State	Army, Navy and Maritime Commission Supply Contracts: Aircraft	Ships	Miscell	Facilities: Industrial	Non-Industrial	Dept. of Commerce C.A.A.	Federal Works Agency	Federal Security Agency	Federal Loan Agency R.F.C.	Total
Alabama	.....	238,334	136,350	308,829	96,400	967	15,134	4,368	5,744	806,158
Arkansas	.....	.....	42,808	181,857	55,684	....	1,804	3,172	448	285,773
District of Columbia	.....	237	1,912	13,957	21,273	....	11,883	942	110	50,314
Florida	.....	103,308	16,690	20,072	196,479	3,711	27,754	3,855	6,854	378,723
Georgia	.....	18,661	55,197	28,419	168,055	1,772	12,850	4,798	544	290,296
Kentucky	.....	.....	22,092	43,550	111,125	348	10,179	3,908	40,247	231,449
Louisiana	.....	109,329	41,570	188,401	130,731	1,443	12,098	3,738	2,500	489,810
Maryland	524,359	316,863	195,193	147,534	91,725	....	24,333	2,957	349	1,307,754
Mississippi	.....	112,433	19,645	24,609	72,501	441	7,762	3,988	3,477	244,990
Missouri	85,245	905	300,795	350,720	100,404	....	25,875	4,319	457	868,720
North Carolina	.....	129,250	61,390	13,358	168,803	421	16,237	4,284	120	393,989
Oklahoma	160,710	.....	31,659	129,132	75,872	932	5,339	3,634	210	407,488
South Carolina	.....	10,800	61,056	33,820	91,060	1,914	23,688	2,802	304	225,444
Tennessee	35,857	3,928	105,215	163,590	91,221	211	7,045	4,982	24	412,188
Texas	267,115	251,627	145,923	487,281	383,060	2,773	32,092	9,948	1,528	1,581,463
Virginia	.....	511,727	56,564	221,825	306,786	....	20,867	4,010	7	1,123,395
West Virginia	.....	18,920	53,400	194,533	1,545	....	17,256	3,916	55	289,625
South	1,073,286	1,826,322	1,347,459	2,551,487	2,162,724	14,933	272,196	69,621	62,978	9,387,579*
United States	9,980,979	6,613,014	14,283,198	9,280,913	5,179,671	38,443	824,273	224,006	767,474	47,208,602*

*Includes $16,631,000 for the United States under the Farm Security Administration of the U. S. Dept. of Agriculture for defense housing. Of this, $6,572,000 was for the South—Ala., $32,000; Md., $4,441,000; Miss., $134,000; N. C., $126,000; Tenn., $115,000; Tex., $116,000; and Va., $1,609,000.

"Aircraft" includes contracts for airframes; airplane engines, propellers, and other parts; and certain related equipment such as parachutes and aircraft pontoons. armament, instruments, and communication equipment are excluded. "Ships" includes contracts for the construction of new vessels of all kinds; the purchase of used ships; and ship conversion, recommissioning, and repair. Propulsion machinery (when separately contracted for), armor, armament, navigation and radio equipment, parts, and materials are excluded.

War contracts and allocations of all Federal agencies through February was $47,208,602,000. *Of this,* $9,387,579,000 *has gone to southern states. Totals for each state in millions of dollars are shown in the map below.*



Important New Industrial Plants and Expansions in the South During March

ALABAMA

The War Department announced award of a contract to Schulz and Norton, Memphis, Tennessee, for architect-engineer services incident to the construction of a depot in Alabama at a cost in excess of $5,000,000. The Mobile, Alabama, District Office of the Corps of Engineers will supervise construction.

FAIRFIELD — coke ovens — Tennessee Coal, Iron & Railroad Co., subsidiary of United States Steel Corp., let contract to Koppers Co., Engineering and Construction Division, Koppers Bldg., Pittsburgh, Pa., for design and erection of 73 Koppers-Becker coke ovens at Fairfield; contract includes auxiliary equipment to process gas from these ovens; construction to begin at once. Salmon & Cowin, Inc., 930 Second Ave., N., has contract for sinking air shaft, hoisting slope and material slope at company's new Short Creek coal mine.

ARKANSAS

Plant—War Department awarded contract to H. B. Deal, Inc., 1218 Olive St., St. Louis, Mo., for manufacturing plant in Arkansas, at cost in excess of $5,000,000; construction will be supervised by U. S. Engineer Office, Vicksburg, Miss.

WARREN—milk plant—Southside Processing Co., J. E. Hurley and J. L. Temple, owners, installing machinery for processing raw milk into butter and cheese; capacity 30,000 lbs. raw milk daily.

DISTRICT OF COLUMBIA

WASHINGTON—warehouse—R. T. Woodfield, 6321 8th St., N. W., has contract for 1-story, brick and concrete warehouse at 514 V St., N. E., for Robert S. Nash; Edwin Weihe, Archt., 927 15th St., N. W.; cost $20,000.

GEORGIA

Bomber plant — Austin Co., Cleveland, Ohio, reported, to be supervising contractors for aircraft bomber plant, near Smyrna, 20 miles from Atlanta, cost $30,000,000; operated by Bell Aircraft Co., Larry Bell, Pres., Buffalo, New York; supervision by U. S. District Engineer, Atlanta; Robert & Co., Archt.-Engr., Atlanta.

BRUNSWICK —shipway— Maritime Commission awarded contract Brunswick Marine Construction Corp. for construction of 6-way shipyard.

ROCKHART—addition—Wright & Loper, Cedartown, Ga., has contract for addition to mill at Aragon, near here, for Aragon Mills; 1 story; 60x130 ft.; concrete foundation; brick walls; built-up roof; steel sash.

SAVANNAH — bakery—Nugent's Bakery, Inc., 312 W. Bryant St., will erect bakery, facing 142 ft. on West Bay St. and 70 ft. on Carolan St.; will contain shipping shed, etc.; install modern equipment; W. E. Long Co., Chicago, Ill., Archt.; Artley Co., 504 E. Bay St., will be contractor.

WEST POINT — addition — Batson-Cook Co., has contract for addition to buildings for West Point Foundry & Machinery Co.; Robert & Co., Bona Allen Bldg., Atlanta.

KENTUCKY

The War Department announced award of a contract to Hart, Freeland and Roberts, Nashville, Tennessee, for architect-engineer services incident to new construction of a depot in Kentucky at a cost in excess of $5,000,000. The Cincinnati, Ohio, District Office of the Corps of Engineers will supervise construction.

LOUISIANA

ALEXANDRIA — ice plant — Gremillion Bros. has contract for erecting $35,000 electric ice plant for Brother Blackman on Lee St.; machinery to be installed by Paul Freeman, Houston, Tex.; 110x137 ft.; capacity 25 tons daily.

Contracts Awarded

ALGIERS—drydock—W. Horace Williams Co., New Orleans, has contract for extension of facilities of Todd-Johnson Drydocks; Frederick Harris, Inc., Engrs.-Archts., 27 William St., New York.

NEW ORLEANS — buildings — Texas & Pacific and Missouri Pacific Railroads have permit for construction of new buildings on Front St., between Thalia and Terpsichore Sts.; total cost $100,500, will include engine house, machine shop and black smith shop, $40,000; power plant, $25,000; employees' wash and locker room, $12,000; storehouse, $15,000; sand house, $1,800; lumber shed, etc.

SHREVEPORT — addition — J. B. Beaird Corp., St. Vincent Ave., let contract to Werner Co., 1320 Pierre Ave. for addition to plant; 1 story; steel; cost $76,375; Neild Somdal & Neild, Archts., City Bank Bldg.

MARYLAND

BALTIMORE—alterations—Cogswell Construction Co., 513 Park Ave., has contract for alteration and addition to Maryland Drydock Co., Fairfield; J. E. Greiner Co., Engrs., 1201 St. Paul St.

BALTIMORE—building—Baltimore Contractors, 23 N. Central Ave., has contract for building, 930 Chart Ave., for Brooklyn Chemical Co.; 1 story; block; cost $16,000.

BALTIMORE—factory—Samuel M. Pistorio, 6400 Frederick Rd. erect factory, Constance Ave. and Pistorio Rd.; 1 story; block; 120x220 ft.; cost $17,000; owner builds.

BALTIMORE — ship plant expansion — Booth & Flinn Co., Pittsburgh, Pa., constructing $4,300,000 ship plant expansion to be leased by ship building division of Bethlehem Steel Co.

SPARROWS POINT—service building—Morrow Brothers, Fidelity Bldg., Baltimore, has contract at $50,000 for service building for Bethlehem Steel Co.

MISSISSIPPI

Plant—War Department authorized construction of a new manufacturing plant in Mississippi, at cost in excess of $5,000,000; construction will be supervised by Mobile, Ala., District Office of Corps of Engineers.

GRENADA — annex — Currie & Corley, Raleigh, Miss., have contract for 180x180 ft. annex to plant of Grenada Industries, Inc., cost $69,975; E. L. Malvaney, Archt., Millsaps Bldg., Jackson; building owned by city.

McCOMB—reconditioning—R. S. Odman with Ellington Miller Co., 25 E. Jackson, Chicago, Ill., Gen. Contrs., reconditioning car shed of Illinois Central System; cost $30,000.

MISSOURI

Plant—War Department announced award of contract to Remington Arms Co., Bridgeport, Conn., for management, procurement of equipment and operation of plant in Missouri.

The War Department announced award of a contract to the Remington Arms Co., Bridgeport, Conn., for management, procurement of equipment and operation of a manufacturing plant in Missouri, under the supervision of the Omaha, Neb., District Office of the Corps of Engineers. The cost of operation will be in excess of $5,000,000.

The War Department announced award of a contract to the United States Cartridge Co., Baltimore, Md., for the operation of a manufacturing plant in Missouri, under the supervision of the St. Louis, Mo., District Office of the Corps of Engineers. The cost of operation will be in excess of $5,000,000.

ST. LOUIS—factory—L. O. Stocker Co., Arcade Bldg., has contract for factory, 4400 N. Union Blvd. for Jackes-Evans Manufacturing Co.; brick and continuous steel sash; 1-story; 334x102 ft.; 2 side bays; concrete foundation and floor; steel roof trusses; steel deck; comp. roof; cost $125,000; Hugo K. Graf, Archt., 2825 Olive St.

ST. LOUIS—storage—L. O. Stocker Co., Arcade Bldg., has contract for storage building, 2843 N. Grand Blvd. for Carter Carburetor Co., 2840 N. Spring Ave.; 1-story; brick; 60x255 ft.; composition roof; steel sash; concrete foundation; cost $60,000.

NORTH CAROLINA

PISGAH FOREST — storage building — Fiske-Carter Construction Co., Greenville, S. C., has contract for storage building for Ecusta Paper Corp.; cost $75,000.

WILMINGTON — expansion — North Carolina Shipbuilding Co., acquired approximately 74 acres adjacent to present property, started work on steel storage racks and fabrication plants; 2 buildings will be erected for storage of machinery and equipment.

OKLAHOMA

The War Department announced authorization for addition to a manufacturing plant in Oklahoma at a cost in excess of $5,000,000. Construction will be supervised by the Tulsa, Okla., office of the Corps of Engineers.

TENNESSEE

The War Department announced award of a contract to E. I. DuPont de Nemours & Co., Wilmington, Del., for design, engineering, construction, personnel training and operation of a manufacturing plant in Tennessee, under the supervision of the Memphis, Tenn., District Office of the Corps of Engineers. Operation of the plant will cost in excess of $5,000,000.

Plant—War Department authorized construction of a manufacturing plant in Tennessee to cost under $5,000,000, under supervision of Nashville District Office, U. S. Corps of Engineers.

TEXAS

Plant—Certainteed Products Corp., 100 E. 42nd St., New York, has contract for consultant service, equipment, procurement, installation inspection, etc. for manufacturing plant; cost in excess of $5,000,000.

Plant—War Department authorized construction of a manufacturing plant in Texas to cost over $5,000,000 under supervision of U. S. Engineer Office, Denison.

Pipe line—Phillips Petroleum Co., Bartlesville, Okla., let contract to Dempsey Construction Co., Kennedy Bldg., Tulsa, Okla., for laying 300 miles of pipe line from Ector County, W. Texas to refinery at Borger in the Panhandle; 237 miles of 8-in. and 60 miles of 6-in. line.

The War Department announced award of a contract to Wyatt C. Hedrick, Inc., Fort Worth, Texas, for architect-engineer services incident to new construction in Texas at a cost in excess of $5,000,000. The Albuquerque, New Mexico, District Office of the Corps of Engineers will supervise construction.

Plant—War Department authorized award of contract to Austin Co., Cleveland, O., for architect-engineer and management services in connection with a manufacturing plant in Texas; construction will cost in excess of $5,000,000 and will be under supervision of Denison District Office of Corps. of Engineers.

CORPUS CHRISTI — machine shop — Southern Pacific Railroad Co., erect, day labor, machine and repair shop, 1424 S. Tancahua St.; steel frame; corrugated walls; concrete slab floors.

EL PASO—remodeling—Goff Motor Co., 218 San Francisco, let contract to H. T. Ponsford & Sons, 914 E. Missouri St. at $19,000 for erecting addition and remodeling building, 1422 Texas St.; 1-story; 50x100 ft.;

brick, stone and reinforced concrete; tile and composition roof; plate glass; concrete foundation and floors.

EL PASO—building—J. D. Wallace, 110 Duranzo St., has contract for business building and cold storage plant, 2110 Wyoming St., for El Paso Egg Producers Association, 2905 Alameda St.; O. H. Thorman, Archt., First National Bank Bldg.

FREEPORT—plant—Defense Plant Corp. an RFC subsidiary, arranged for construction and operation of magnesium plant on Gulf of Mexico, by Dow Chemical Co., capacity annually of 72,000,000 lbs.; cost approximately $52,000,000; Austin Co., Houston, Contr.

GALVESTON—addition—W. Horace Williams, 833 Howard Ave., New Orleans, La., has contract for machine shop addition to Todd Shipbuilding Corp.'s plant.

GALVESTON—addition—George E. Cole has contract for addition to plant of Gray's Iron Works, Inc., 1901 Water St.; cost $50,000.

HOUSTON—paint plant—Humble Oil & Refining Co., Humble Bldg. let contract to Southwestern Construction Co., 3802 Calhoun St. to erect $100,000 paint manufacturing plant; located about ½ mile northeast of Market St. Rd., 2-story; concrete and frame; brick; 77x102 ft.; Alfred C. Finn, Archt., Bankers Mortg. Bldg.; Ray L. Jenkins, Mech. Engr., 4316 Blossom; J. E. Niland, Ch. Engr. for company; Barber Plumbing Co., 1419 Paige St. has contract for plumbing and heating; Fisk Electric Co., 3104 Milan St. contract for electrical work.

PORT ARTHUR—Gasoline Unit-Lummus Co., 420 Lexington Ave., New York, has contract, work starting on $3,000,000 aviation gasoline unit at local plant of Gulf Oil Corp.; double present plant capacity to make 100-octane fuel, bringing it to 4,000 bbls. daily.

VIRGINIA

The War Department announced award of a contract to Carneal, Johnston and Wright, Richmond, Virginia, for architect-engineer services incident to construction in Virginia at a cost in excess of $5,000,000. The Richmond, Virginia, District Office of the Corps of Engineers will supervise construction.

The War Department announced award of a contract to Doyle and Russell and Wise Contracting Co., Inc., both of Richmond, Va., for construction of a depot in Virginia at a cost in excess of $5,000,000. Construction will be supervised by the Norfolk, Va., office of the Corps of Engineers.

LYNCHBURG—office—Mead Corp., Chillicothe, Ohio, let contract to C. L. Lewis, Allied Arts Bldg., Lynchburg, for construction of a $40,000 office building adjoining company's paper mill in Lower Basin; 123x44 ft.; 2-stories; brick and reinforced concrete; contain machine shop, dining room, laboratory, storage rooms and 11 offices; plans by company's architects.

RICHMOND—sheds—W. E. Baker Construction Co., has contract for erecting 1-story, frame storage sheds covering 18 acres on Ninth St. Rd. between Bruce and 16th St. for American Tobacco Co., C. Huntley Gibson, local manager, 26th and Cary Sts.; cost $175,000.

RICHMOND — remodeling — Nolde Bros., Inc., bakery, 2520 E. Broad St., let contract to James Fox & Son, 2501 E. Franklin St. for remodeling building; cost $40,000.

WEST VIRGINIA

CHARLESTON—building—E. L. Harris & Son, have contract for erecting $27,000 masonry building on Piedmont Rd. for J. M. Laird of Laird Engineering Co.; Charles A. Haviland, Archt., Virginia Land Bank Bldg.

HUNTINGTON — plant — Neighborgall & Leach, Fifth Ave. Arcade Bldg. has contract, work to start soon on plant Washington Ave. for Huntington Precision Products Corp.

Contracts Proposed

ARKANSAS

STAMPS — generating plant — Arkansas Power & Light Co., Pine Bluff, will construct electric generating plant near Stamps; first unit to be of 30,000 capacity and with buildings and complementary equipment will cost $3,000,000; tests to determine exact site being made by George W. Hewitt, of Niagara Falls, New York, power plant construction engineer; tests to be completed in about 2 weeks and construction to start then; power plant will be of open type construction; brick; 80x150 ft.; smokestack, 250 ft. high; desulphurized natural gas will be used as fuel; Carter Oil Co., will supply a maximum of 10,000,000 cu. ft. daily.

DISTRICT OF COLUMBIA

WASHINGTON—addition—Potomac Electric Power Co., will require additional financing of $7,000,000 this year; proposed that $3,000,000 of the amount needed be furnished by purchase of additional stock of Potomac Electric by its parent company, Washington Railway & Electric Co. and balance by sale of bonds by Potomac Electric; construction program includes a 50,000 kw. unit in 1942 and two others of same capacity in 1943 and 1944; a 50,000 kw. generating turbine was installed late in 1940 in Buzzard Point Station, another unit of same size is scheduled for installation within a few weeks.

FLORIDA

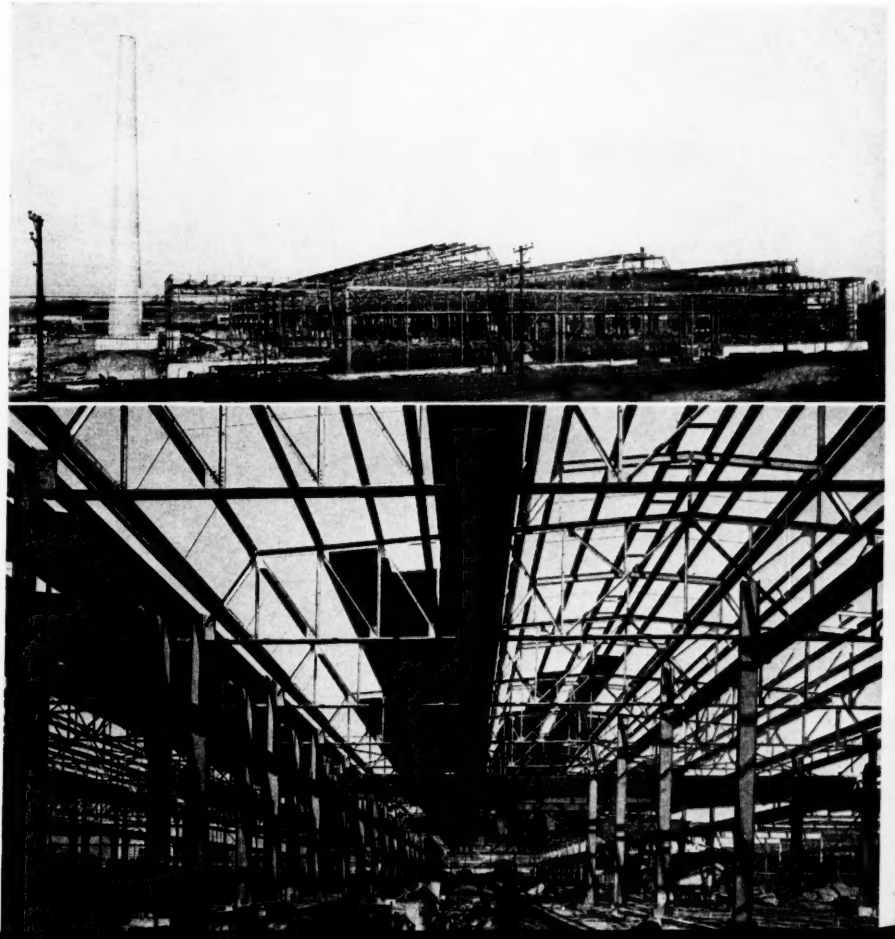
JACKSONVILLE—shipyard—U. S. Maritime Commission announced award of a $7,000,000 shipyard in which 30 cargo ships will be built at a total cost of $60,000,000; shipyard will be operated by the recently organized St. Johns River Shipbuilding Co., James C. Merrill, Pres.; shipyard will be financed by the Federal Government; program calls for construction of liberty ships, each with dead weight of 10,500 tons; will be built of steel, 450 ft. long, with a 57 foot beam and a 37 foot over-all depth.

CANTOMENT—pulp and cylinder board mill—Santa Rosa Pulp & Paper Co., recently formed with officers the same as the Florida Pulp and Paper Co., P. O. Box 1591, Pensacola, J. H. Allen, Pres. and Gen. Mgr.; R. G. Seip, Ch. Engr.; Hardy S. Ferguson, Consit. Engr.; H. Hilton Green, V. P. and Traffic Mgr., will build for Defense Plant Corporation, a 100 ton semi-chemical pulp and cylinder board mill on a mill site adjoining the Florida Pulp & Paper Co.; plant will be built largely of used equipment; less than $100,000 of new equipment will be purchased; side tracks are being built on site now, most of used equipment purchased.

KENTUCKY

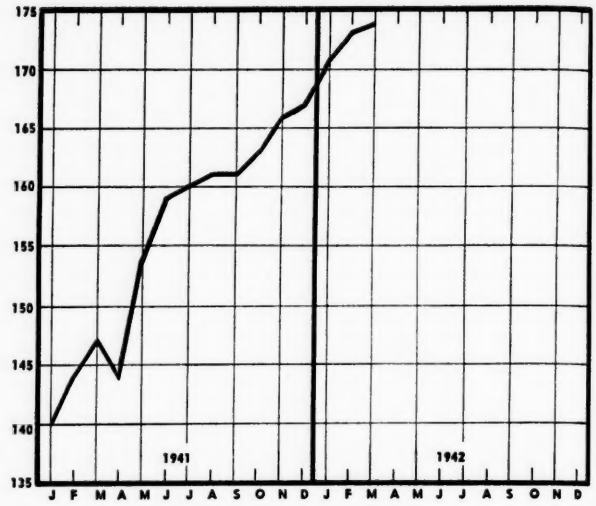
Universal Concrete Pipe Corp., Columbus, Ohio, establish $40,000 plant on 5-acre tract in Kentucky.

(*Continued on page 56*)



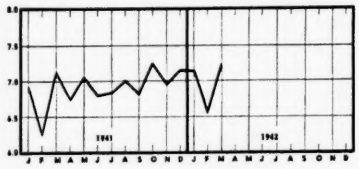
The steel skeleton of one of Maryland's newest factories is shown at right just prior to application of the siding and roofing that will bring the building into its final completion stages. Being erected by James Stewart & Co., Inc., New York heavy construction concern, the plant will be operated by Revere Copper & Brass, Inc. Condenser tubes will be produced. The structure sprawls over many thousand square feet and contains two manufacturing bays, each 100 feet wide by 672 long, as well as casting and machine shops, laboratory, boiler plant and offices. Natural lighting will be utilized to the utmost by maximum installations of glass in both the sidewalls and monitors. Plans were prepared by the contractors organization.

Industrial Production Trends



INDUSTRIAL PRODUCTION
(*Adjusted Index* 1935-39=100)

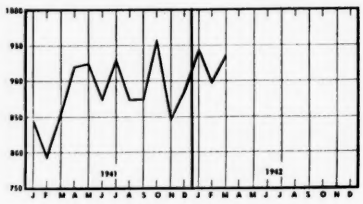
Industrial production, as shown on the 1935-1939=100 adjusted index, was 174 according to preliminary reports for March, a gain of one point over February. Revised figures for January and February of 1942 show that those two months recorded gains to 171 and 173, respectively, or approximately thirty points above the corresponding period of 1941.



STEEL INGOT PRODUCTION
(*Millions short tons*)

Steel production in March, according to early returns, totaled 7,209,600 tons which is an increase of almost one-half million tons over the amount produced in February. The operating rate of capacity for most of March was approximately 97.5% but in the closing week rose to 99% and is expected to remain above the 98% mark during the weeks to come.

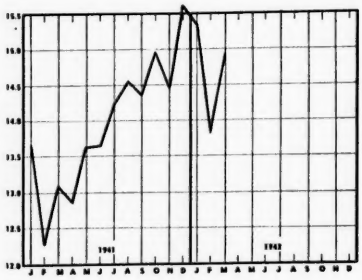
Cotton consumption in March is estimated to have totaled 935,000 bales, an increase of more than 40,000 bales over the February quantity. This brings the



COTTON CONSUMPTION
(*Thousands of bales*)

total amount consumed during the first eight months of the current cotton season to well above seven million bales. With the huge demand for textiles needed by the armed forces the number of active spindles is being increased as evidenced by the fact that in February there were 23,078,000 spindles active against 22,777,000 in February 1941. Operations of the textile industry, based upon per cent of capacity, likewise have increased from 114% in February 1941 to 135.9% in February of this year.

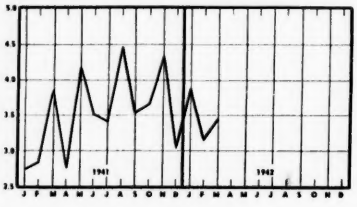
Electric power production, which declined in February to 13,810,541,000 kw. hrs., due in part to the shorter month, and which in time, rose to 14,950,000,000 kw. hrs. in March. Though the daily



ELECTRIC POWER PRODUCTION
(*Billions kilowatt hours*)

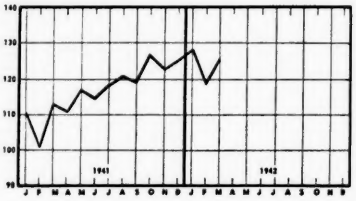
average production has declined slightly from previous months, it is still approximately 15% higher than the corresponding figure of a year ago, the largest increase being in the south Atlantic area.

Carloadings in March amounted to 3,435,725 or about 250,000 more than the



CARLOADINGS
(*Millions*)

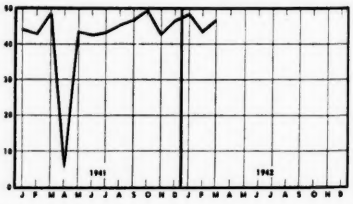
February figure but it is rather below the average of the past several months. Carloadings in the second quarter of 1942 are expected to be 14.6% above actual loadings in the same period of 1941.



CRUDE PETROLEUM PRODUCTION
(*Millions of barrels*)

Products anticipated to show the greatest increases are coal and coke, 31.1%; citrus fruits, 17.5%; grain, 17.4%; gravel, sand and stone, 17.2%; and chemicals and explosives 16.3%.

Crude petroleum production, for which official figures are still lagging, is estimated to have totaled 125,500,000

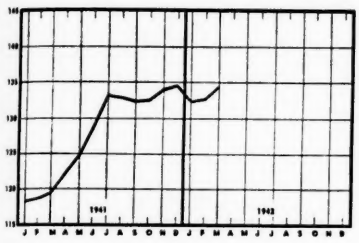


BITUMINOUS COAL PRODUCTION
(*Millions of tons*)

bales in March. Actual figures for last December and January show 128,293,000 and 128,262,000 barrels, respectively, the daily average production remaining fairly constant throughout the past several months at 4,135,000 barrels. The loss of tankers and completion of pipe-

lines will call for a larger production in the months to come.

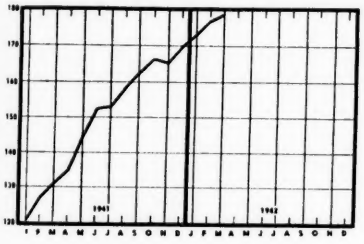
Bituminous coal production, which dropped to 43,840,000 tons in February, rose to 46,270,000 tons in March, which closely approximates the figure of last December but is almost two million tons below the January total. It is also about two million tons below the corresponding figure for March 1941. It is anticipated both the daily and the monthly



FACTORY EMPLOYMENT
(*Adjusted index*, 1923-25=100)

production will rise during the ensuing months.

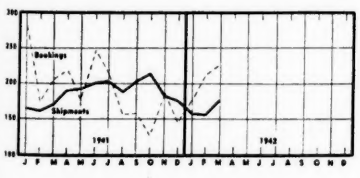
Factory employment rose less than anticipated during February, being recorded at 132.9 on the 1923-1925=100 adjusted index. A slightly better gain was made during March, according to early returns, with the index standing at 134.5. The increase from January to February was substantially less than the usual seasonal gain. Were it not for the restrictions on use of raw materials for civilian needs, which is causing unemployment in certain directions, fac-



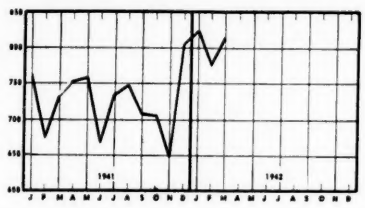
FACTORY PAYROLLS
(*Index*, 1923-25=100)

tory employment would stand at several points higher than it does.

Payrolls, as shown on the 1923-1925 = 100 index, continue to rise and now stand at 178.5 for March against 176.9 in February and 173.5 in January, the actual rise from January to February, being slightly over two per cent, while an increase over the entire year amounted to 39.5%.



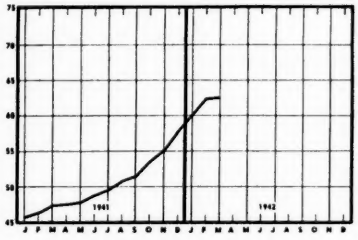
STRUCTURAL STEEL
(*Thousands of tons*)



SOUTHERN PINE PRODUCTION
(*Million board feet*)

Structural steel bookings amounted to 225,000 tons in March against 220,200 tons in February, the latter having been revised upward from earlier returns. Shipments, which amounted to only 153,700 tons in February, increased to 175,000 tons in March. Both orders and bookings are expected to rise substantially under the impetus of the large war production construction program.

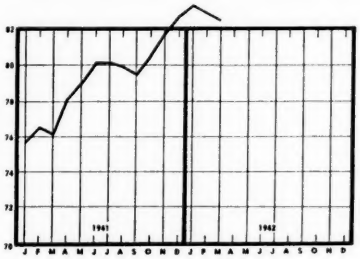
Southern pine production which dropped slightly during the short month of February, rose seasonally in March to an estimated 815,000,000 board feet.



FEDERAL PUBLIC DEBT
March 31, 1942
(*Billions of Dollars*)

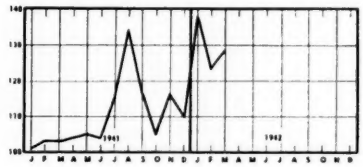
While the backlog of orders is large enough to carry this industry for some months to come, it is now expected that a serious decline will set in when the needs for the present large construction program have been met.

Public warehouse space that is occupied amounted to 82.5% of capacity during March. Such a decline was believed to have started in January but revised figures show that in that month the amount of occupied space actually increased to 83.4. The decline will undoubtedly be gradual.



PUBLIC WAREHOUSE SPACE
(*% of capacity occupied*)

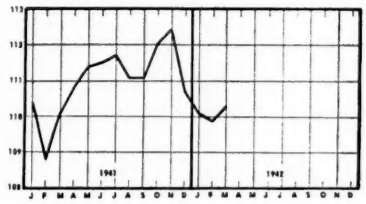
Retail trade, which dropped to 123.5 on the department store sales' 1923-1925 =100 adjusted index, rose during March to 129, which is about 25 points higher than the corresponding period of 1941. Increased employment and higher payrolls are the principal factors in this continued high rate of retail trade but fear as to future supplies of many commodities is also a large factor. It is expected that from now on the volume of



DEPARTMENT STORE SALES
(*Adjusted index*, 1923-25=100)

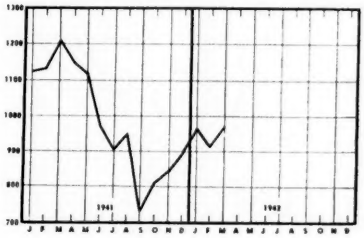
retail sales will slowly but steadily decline.

U. S. Treasury bonds average price fell to 108.9 in February in spite of an anticipated rise and almost equalled the same price for the corresponding month a year ago. It is the lowest point reached in that year. Preliminary returns for March indicate that a recovery was made to 110.3.



U. S. TREASURY BONDS
(*Average price per $100 bond*)

Commercial failures, which had been rising slowly since last September, declined to 916 in February but rose again in March to 972. On the other hand however, liabilities continue low. While the March figure is not yet available, it is believed to compare favorably with the February total of $9,631,000. Failures among small businesses in the future are largely dependent upon government action in utilizing these firms' services in the war program.



COMMERCIAL FAILURES
(*Total number*)

PRIORITIES

Agave Fiber—M-84 Amend. No. 2 releases waste not suitable for cordage or twine.

Agricultural Bags—M-107 provides for increased production and carries a rating of A-2.

Airplanes—P-109 replaces P-3, P-4, P-9-a through P-9-g, P-13, P-15 and P-52: this new order expires June 30, 1942 and provides for: A-1-a rating. P-109 Amend. No. 1 gives materials essential to production the same rating of A-1-a as materials used directly in planes. P-109-a assigns A-1-b rating to military and naval training planes. P-122 assigns A-1-a and A-1-b ratings to certain deliveries for planes under military and naval orders. Related forms are PD-1, PD-1A, PD-3, PD-3A and PD-5.

Alcohol—M-31 Amend. No. 4 assigns B-2 and B-3 ratings to shipments in classifications I and II of M-25.

Antimony—M-112 provides for allocations and requires form PD-380 and PD-381. It expires December 31, 1942.

Aluminum—M-1-g controls use and distribution of aluminum pigment and of paint and other liquids containing aluminum. Forms PD-312 and PD-313 are required. Expires December 31, 1942.

Amusement Machines—L-21-a is supplementary order affecting production. L-27-a discontinues production of certain vending machines.

Arc Welding and Resistance Welding Machines—P-39 is extended till May 1, 1942 by Extension No. 2. Assigns rating of A-1-c.

Asbestos Textiles—M-123 provides for conservation and assigns A-10 or higher rating.

Automobiles (Passenger)—L-2-i prevents dispersal of manufacturers' inventories and assigns rating of A-1-1 or higher.

Bicycles—L-52 curtails manufacturing.

Can Enamel—M-108 prohibits use on tin cans.

Canning—P-115 Interpret No. 1 gives canners who use leased machinery the same ratings as if they were the owners. Requires forms PD-81a and PD-285.

Canning Machinery and Equipment—M-86 requires quantities of canned foods to be set aside for Government. M-86-a is supplementary order affecting canned fruits. Use forms PD-342 and PD-343 for both orders.

Caskets, Cases and Burial Vaults—L-64 curtails use of certain metals in manufacturing.

Cellophane—L-20 Exten. No. 3 prohibits use in wrapping certain items.

Chemicals—M-19 as amended Amend. No. 2 effective May 1, 1942, prohibits use of chlorine in bleaching and manufacture of cosmetics. M-25 Amend. No. 6 assigns B-4 to embalmers in obtaining formaldehyde P-89 as amended interpret. No. 1 clarifies "operating supplies" in maintenance and repair materials order. M-41 affecting solvents (chlorinated hydrocarbon) extended to May 15, 1942 by Exten. No. 1.

Chromium—M-18-b limits use of chromium in chemicals. Assigns A-10 or higher rating and requires form PD-54.

Closures—L-68 prohibits use of copper, copper base alloys, steel, zinc and zinc base alloy in manufacture of specified items.

Containers—P-79 as revised affects steel products used in production or repair of non-metal containers. Assigns A-5 and A-7 ratings and requires forms PD-81 and PD-82. Expires June 30, 1942.

Copper—M-9-c as amended Interpret No. 2 clarifies use of bronze powder, ink, paste and lead by printing industry. M-9-b as amended and extended permits public utilities to use in own operations wire or cable that is scrap through obsolescence provided lengths are greater than five feet and monthly total less than five tons. Use forms PD-121, 130, 226, 249.

Cork — M-8-a amend. No. 1 assures equal distribution. Requires form PD-384.

Cotton (Egyptian, Imported)—M-117 restricts sale, use and delivery of certain grades.

Dyestuffs—M-103 restricts sale, use and delivery.

Electrical Appliances—L-65 discontinues use of critical materials in manufacture and prohibits production after May 31 except on orders rated above A-2. Use form PD-370. L-35 curtails manufacture of portable electric lamps and shades.

Farm Machinery and Equipment — L-26-a restricts manufacture of tractors requiring rubber tires. P-95 amend. No. 1 includes irrigation equipment increases manufacturing percentage quotas of various machinery. L-26 amend No. 1 restricts production of additional equipment.

Flake Graphite (Madagascar)—M-61 conserving supply and restricting use interpreted under interpret. No. 1.

Flashlights—L-71 prohibits use of critical materials in making cases and batteries.

Freight Cars—P-8 assigning A-3 rating for construction is extended to April 30, 1942. Use forms PD-38 and PD-38a.

Fuel Oil—L-56 curtails consumption and use.

General Inventory Order—M-113 revokes inventory restrictions on certain type boxes.

Glycerine—M-58 provides allocation control for deliveries exceeding 50 pounds a month. Requires forms PD-361, 362, 363.

Goatskins, Kidskins and Cabretta—M-114 restricts use, sale and deliveries. Use form PD-373.

Hemp—M-36 amend. No. 3 further restricts processing, sale and delivery. M-36 interpret. No. 1 defines manila cordage. M-36 amend. No. 4 restricts sales and deliveries.

Honey—M-118 restricts sales and deliveries to conserve present stocks.

Imports Order—M-63 amend. No. 3 makes changes in list "A" of imported materials of which a shortage exists.

Iron and Steel—M-24-a supplements order restricting sale or shipment of tinned scrap.

Kapok—M-85 amend. No. 1 amends and extends to April 30, 1942, small dealers permit to accumulate stock.

Kitchen and Miscellaneous Household Articles—L-30 curtails use of iron, steel and zinc in manufacturing.

Laboratory Equipment and Reagent Chemicals—P-62 provides material for production. P-62 exten. No. 1, amend. No. 1 extends expiration date to June 30, 1942.

Laundry Equipment (Domestic)—L-6-c further restricts and finally prohibits production.

Lauric Acid Oils—M-60 restricts production, sale and delivery. Requires form PD-354.

Lawn Mowers—L-67 cuts in half the amount of iron and steel used in manufacture and prohibits all manufacturing after June 30.

Lead—M-38 is extended to December 31, 1942 under exten. No. 1. M-38-g sets April lead pool at 15 per cent of February, 1942.

Leather—M-80 requires setting aside 80% of top grade leather soles for military shoes.

License Plates—L-32 restricts issuance of metallic plates.

Locomotives—P-20 and P-21 assigning A-3 rating for building and repair are

Maintenance and Repairs — P-100 amend. No. 2 affects priorities for maintenance and repair of stores' and restaurants' refrigerating equipment. P-100 Interpret. No. 2 excepts office equipment from using ratings assigned in P-100. P-88 gives railroads higher ratings for critical materials: use forms PD-351 and PD-352. P-120 provides high ratings for producers and fabricators of aluminum and magnesium: requires forms PD-371 and PD-372.

Metal Household Furniture—L-62 restricts production.

Metal Plastering Bases and Accessories—L-59 curtails production.

Metal Signs—L-29 curtails use of iron and steel in manufacturing.

Metal Windows—L-77 restricts production and directs distribution. A-10 or higher rating provided.

Molasses—M-54 as amended provides for operational changes.

Molybdenum—M-110 restricts production. Use forms PD-358 and PD-359.

Motor Carriers—Exten. No. 4 to P-54 as amended defines and extends deliveries and delivery dates of materials entering production of defense goods. L-69 extends ban on "bright work."

Motor Fuel—L-7 restricts delivery. Forms PD-368, 369 required.

(*Continued on page* 56)

Photo by U. S. Army Signal Corps

General MacArthur—A Southerner

The Congressional Medal of Honor, this country's highest award for bravery, and the first one announced in the present war, has been awarded to one of the greatest men of the South, General MacArthur, a native of Arkansas. The citation accompanying the award states:

"General Douglas MacArthur, Commanding General, United States Army Forces in the Far East. For conspicuous leadership in preparing the Philippine Islands to resist conquest, for gallantry and intrepidity above and beyond the call of duty in action against invading Japanese forces, and for the heroic conduct of defensive and offensive operations on the Bataan Peninsula. He mobilized, trained, and led an army which has received world acclaim for its gallant defense against a tremendous superiority of enemy forces in men and arms. His utter disregard of personal danger under heavy fire and aerial bombardment, his calm judgment in each crisis, inspired his troops, galvanized the spirit of resistance of the Filipino people, and confirmed the faith of the American people in their armed forces."

DuPont, One Hundred and Forty Years

This book, like its subject, is one that will occupy an unique place in America's industrial history. It is the biography of a business, a family and a progressive nation. It is the story of men, of vision and venture, of labor, sacrifice and accomplishment. It exemplifies the romance of industry with roots that originated in the French revolution and was followed for a hundred years with trial, tribulation and success.

The second half of the book deals with the development not only of the duPont company but with many of those chemical industries which have comparatively recently come into prominence to justify the duPont slogan "Better Things for Better Living Through Chemistry."

DuPont, One Hundred and Forty Years by William S. Dutton, published by Charles Scribner's Sons. $3.00.

War Contracts in the South

Recent contracts for war materials awarded by the Quartermaster Corps included the following firms in the South:

MISCELLANEOUS QUARTERMASTER AWARDS

TOOLS: Crawford Mfg. Co., Inc., Kansas City, Mo., kits, tool, canvas, M-1921, (empty) complete with tools for blacksmiths, 1,217, $1,168.32; Champion Canvas Supplies, St. Louis, Mo., kit, tool, canvas, M-1921, 7,223, $5,778.40.

CHINAWARE: D. E. McNicol Pottery Co., Clarksburg, W. Va., boats, sauce, 35,500, $18,069.50; bowls (soup), 30's low foot, 27,000, $6,021; cups, coffee, unhandled, 200,000, $30,200; dishes, vegetable, baker, 10" RE, 82,000, $45,838; plates, dinner, 200,000, $43,600; saucers, coffee, 300,000, $33,600.

KITCHEN APPARATUS: Louisville Tin & Stove Co., Louisville, Ky., crater, veg., retinned, 24,000, $11,520; Hillerich & Bradsby Co., Inc., Louisville, Ky., mashers, potato, 3½" x 18½" wood, 2,500, $825; pins, rolling, 3¾" x 23", 4,000, $1,720; mashers, potato 3½" x 18½", wood, 10,000, $3,300; C. A. Stuck & Sons, Jonesboro, Ark., spatulas, wood, 37", 24,000, $6,240.

MISCELLANEOUS: Samuel Stamping & Enameling Co., Chattanooga, Tenn., containers, water, 5-gal., 100,000, $194,000.

DUCK: Denison Cotton Mills Co., Denison, Texas, duck, cotton, tent, grey, 12.10-oz., 31½", 240,000 yds., $67,800; duck, cotton, tent, grey, 12.10-oz., 31½", 610,000 yds., $161,650; duck, tent, grey, 12.10-oz., 63", 48,000 yds., $29,040.

COATS: J. Schoenaman, Inc., Baltimore, Md., coats, wool, elastique, OD, dark shade, 18-oz., Aviation Cadet.

CAPS: Mound City Cap Mfg. Co., Inc., St. Louis, Mo., herringbone twill caps, 75,000, $12,187.50; Lerner Bros. Cap Co., Kansas City, Mo., herringbone twill caps, 100,000, $15,984.

OVERCOATS, WOOL DOESKIN, O. D., AVIATION CADET, SHORT STYLE: Hyde Park, Inc., Newport, Ky., 10,000, $58,941.00.

MISCELLANEOUS CLOTHING ITEMS: Drawers, cotton protective, Mt. Airy Knitting Co., Mt. Airy, N. C., 3,518, $2,073.03; Jackets, Field, o. d., The Shirtcraft Co., Inc., Baltimore, Md., 17,000, $27,301.58.

BLANKETS, WOOL, O. D., M-1934 (ALL DOMESTIC): The Springfield Woolen Mills Co., Springfield, Tenn., 40,000, $263,600.00.

DUCK, COTTON: Beaumont Mfg. Co., Spartanburg, S. C., 12.29 oz., 40", 500,000, $207,300.00; Graniteville Co., of Graniteville, S. C., New York, N. Y., tent, o. d., 7.9 oz., 33", 850,000, $340,000.00; Callaway Mills, LaGrange, Ga., tent, in the grey, 9.68 oz., 31½", 725,000, $156,382.50—tent, in the grey, 9.68 oz., 63", 1,150,000, $495,995.00; tent, in the grey, 12.10 oz., 63", 1,000,000, $519,700.00—tent, twill, 7.90 oz., 58", grey, 1,435,000, $574,000.00; Graniteville Co. of Graniteville, S. C., tent, in the grey, 9.58 oz., 30", 514,000, $130,427.50; Mt. Vernon-Woodberry Mills, Baltimore, Md., tent, in the grey, 12.29 oz., 30", 479,-

(*Continued on page 67*)

U. S. Authorized Program and Purchases

	Authorized Program As of March 15	*Disbursements As of March 15*
	In millions of dollars	
Total	$136,954	$21,098
Army	67,073	10,589
Navy	35,215	6,156
Lend-Lease	18,410	1,958
Other war agencies	16,256	2,395

Foreign Governmental Transactions in the United States

Total obligations, Nov. 1939-Feb. 28, 1942	$4,096,000,000
Payments on orders, Nov. 1939-Feb. 28, 1942	2,844,000,000

Plant Expansion

Government commitments for war plant expansion June 1940-January 31, 1942; 860 projects	$7,123,000,000
Private commitments for war plant expansion June 1940-January 31, 1942; 4,744 projects	1,547,000,000

A UNITED NATION

● The nation is united — and Long Distance telephone lines help to tie it together for war's work. . . . You can keep materials moving, wheels turning, men working — if you can reach any one, anywhere in the land, in a hurry. . . . It takes a *lot* of telephone calls to build fighting planes, freighters or factories — to move men and machines around the map. . . . If the rush of war interferes here and there with the accustomed smoothness of regular Long Distance traffic, we hope you will understand.

SERVICE TO THE NATION **IN PEACE AND IN WAR**

Southern Field Offices of the Division of Contract Distribution

ALABAMA
Birmingham
L. E. Geohegan, Mgr.
301 Phoenix Bldg.
1706 Second Ave., N.

ARKANSAS
Little Rock
Alfred M. Lund, Mgr.
304 Rector Bldg.
Third and Spring Sts.
Fort Smith
Frank P. DeLarzelere, Mgr.
13 North 7th Street

FLORIDA
Jacksonville
Charles C. McCubbin, Acting Mgr.
730 Lynch Bldg.
Main and Forsyth Sts.
Miami
Forrest D. Banning, Acting Mgr.
701 Congress Bldg.
Tampa
Arthur B. Hale, Mgr.
901 Wallace S. Bldg.

GEORGIA
Atlanta
J. V. Booth, Acting Mgr.
Suite 150, Hurt Bldg.

KENTUCKY
Louisville
Prentiss M. Terry, Mgr.
200 Todd Bldg.

LOUISIANA
New Orleans
R. E. Judd, Mgr.
423 Canal Bldg.
Shreveport
R. E. Judd, Mgr.
916 Giddens Land Bldg.
Milan and Marshall Sts.

MARYLAND
Baltimore
G. W. Creighton, Mgr.
1254 Baltimore Trust Bldg.

MISSISSIPPI
Jackson
A. G. McIntosh, Acting Mgr.
605 Tower Bldg.

MISSOURI
St. Louis
F. J. McDevitt, Mgr.
Suite 1131, Paul Brown Bldg.
Kansas City
R. W. Webb, Mgr.
508 Mutual Bldg.
13th and Oak Streets

NORTH CAROLINA
Charlotte
Eugene C. Ochsenreiter, Mgr.
New Liberty Life Building
Raleigh
R. M. Hanes, Acting Mgr.
Sir Walter Hotel Building

OKLAHOMA
Oklahoma City
W. L. Ducker, Jr., Mgr.
540 Key Bldg.
Tulsa
John H. Keys, Mgr.
435 Kennedy Bldg.

SOUTH CAROLINA
Columbia
D. E. McDuffie, Acting Mgr.
204-206 Manson Bldg.
1207 Taylor Street

TENNESSEE
Memphis
Arthur M. Field, Mgr.
2112 Sterick Bldg.
Chattanooga
P. E. Shacklett, Mgr.
909-910 James Bldg.
Knoxville
W. W. Mynatt, Acting Mgr.
204-5 Goode Building
Nashville
W. G. Whitsitt, Mgr.
1014 Stahlman Bldg.

TEXAS
Dallas
A. J. Langford, Mgr.
Fidelity Bldg.
El Paso
L. A. Wilke, Mgr.
222 El Paso National Bldg.
Houston
I. M. Griffin, Mgr.
9th Floor Electric Bldg.
1016 Walker Ave.
San Antonio
P. E. Locke, Mgr.
816 Majestic Bldg.
Houston and Navarro Sts.

VIRGINIA
Richmond
J. L. Mason, State Director
Johnson Publishing Bldg.
Fifth and Cary Sts.
Norfolk
J. L. Mason, Acting Mgr.
528 Dickson Bldg.
Roanoke
J. L. Mason, Acting Mgr.
118 Kirk Ave., S. W.

WEST VIRGINIA
Charleston
E. J. McClees, Mgr.
24 Capital City Bldg.
Huntington
Frank Enslow, Mgr.
309-311 West Virginia Bldg.
Clarksburg
Alex H. Cooper, Mgr.
Empire National Bank Bldg.
Wheeling
E. C. Drake, Mgr.
Hawley Bldg.
1025 Main Street

U. S. Produced 122,000,000 Pounds Rayon Staple Fiber in 1941

World production of rayon staple fiber totaled approximately one and a half billion pounds in 1941, which represented more than a 200-fold increase over the 1929 production of 7,185,000 pounds, according to Rene Bouvet of the American Viscose Corporation. United States production of rayon staple fiber in 1941 reached 122,000,000 pounds, or approximately 8 per cent of the world total.

"The versatility of rayon staple fiber is endless, its potentialities hardly explored, and its present achievements may be regarded as a modest beginning of what the future holds," Mr. Bouvet stated.

"With comparatively few changes, existing cotton machinery can be used for the processing of rayon staple fiber. The woolen and worsted industries already use it in large quantities and are anxious to see their allotments increased. Blends comprising 50 per cent of rayon and 50 per cent of wool are being spun very successfully on the cotton system."

Manganese Plants for the South

Seven small projects, some of which will be in the South, and three large ones for the production of manganese from low-grade domestic ores have been recommended for Federal financing to produce this vital steel alloy.

The new plants, plus those already in operation, should produce well over 600,000 tons a year in high grade manganese concentrates, as compared with 30,000 tons domestically produced in 1939 and 40,000 tons in 1940.

Intensive studies and experiments carried on during the past year by the United States Bureau of Mines and Geological Survey and by private groups have developed methods that will produce high grade manganese concentrates from 10 to 12 per cent ores. Results of the various tests have been evaluated by the Advisory Committee of the National Academy of Sciences and several have been recommended to the WPB for development.

These will be applied on the three large projects that will produce more than two-thirds of the expanded domestic output—in the Cuyuna Range of Minnesota, the Missouri River area in South Dakota and in the vicinity of Boulder Dam in Nevada.

More than a million tons of ore a year will be treated at a Government-built plant to be erected in the area of the Cuyuna Range. Ore for the operations will be purchased from private producers.

In the South Dakota area, 16 per cent manganese concentrate will be extracted from 1 and 2 per cent manganiferous shales. Ore dressing followed by a blast furnace smelting process will be used to extract the metal from some five million tons of clay annually.

At the Nevada mill, a sulphurous acid method will be used on 20 per cent ores to produce 60 per cent concentrates. The plant will handle 300,000 tons of ore annually.

In addition to these three large projects, seven small ore dressing plants are to be built in Arkansas, Montana, Utah, Nevada, Georgia and Tennessee to treat production from small mines. These plants will treat from 150 to 500 tons per day of crude ore and will produce high grade manganese concentrates and an appreciable amount of manganiferous iron ore.

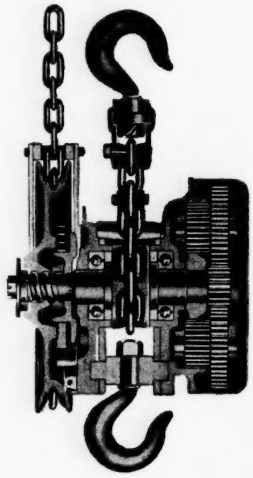
B. & O. to Pay Contingent Interest

At a meeting on March 18 in New York, the Board of Directors of The Baltimore and Ohio Railroad Company appropriated $22,073,407.69 out of income for the year 1941, with which to pay the contingent interest due on several issues of bonds of the Company and certain of its subsidiaries. With this distribution, all interest which has heretofore been deferred will be met in full.

New Methods and Equipment

Improved Spur Geared Chain Hoist

Designed for many applications in practically all lines of industry where a maximum amount of speed, safety, durability, and efficiency is essential, an improved, standard type of spur gear is announced by the Coffing Hoist Company of Danville, Ill. Known as Model Y-C, the new hoist is equipped with a dust guard to protect the Weston type brake from dust and dirt. Heavy suspension plates provide unbreakable support between top hook cross-head and load sheave. They also directly support the saddle for double-chain hook-up, a new feature in this type of hoist which eliminates the use of a top yoke, thus reducing weight and headroom and permitting the hoist

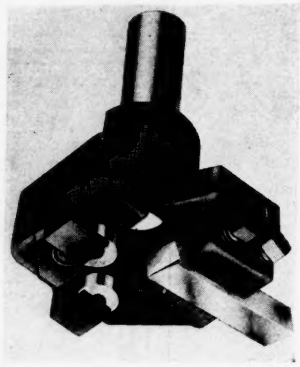


to hang evenly at all times. Enclosed and protected from dust and grit, the load sheave is mounted on two heavy precision ball bearings. Other important features are also embodied in the new Model Y-C, which is built in six capacities—½, 1, 1½, 2, 3 and 4 tons—and all capacities are factory tested at 100 per cent over their rated capacity.

Boyar-Schultz Screw Machine Tools

Because of the already great demand, to say nothing of the ever expanding need for machine tools at this time, the announcement by Boyar-Schultz Corporation, Chicago, Ill., of the development of a new box tool for automatic screw machines is timely.

Bodies of Boyar-Schultz Box Tools are made from forged steel, heat treated for maximum properties, while other parts are made from heat treated alloy steels, finished to close limits. The strength and accuracy built into them assure close settings and accurate turnings for long runs, while simplicity of design permits

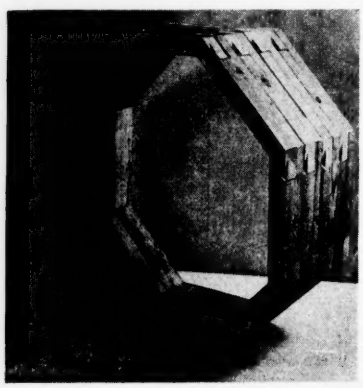


quick set-up operations and when regrinding is necessary this is accomplished with a minimum of delay. This feature is particularly desirable when turning alloy steels which necessitate frequent regrinding of tool bits. The tools are finished in a new and attractive satin-black finish which is rust-resisting and durable. They are offered in three sizes—00, 0, and 2. Other models are expected to follow.

Wartime Drainage Pipe

Building drainage structures without the use of critical materials is said to be solved by the new ARMCO Emergency Pipe, according to Armco Drainage Products Association, Middletown, Ohio.

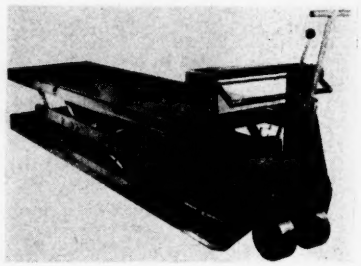
The opening of the Emergency Pipe is made up of a series of short stout segments, given an octagonal or other polygonal shape, connected together in an ingenious way to utilize the full strength of the material. Units are shop assembled or fabricated into lengths of 12 feet or more, which are joined together in the field to make a single structure—with many of the structural characteristics of corrugated metal pipe.



Features of the Emergency Pipe are described in a folder to be obtained from Armco Drainage Products Association or member companies.

Truck With Hydraulic Elevating Table

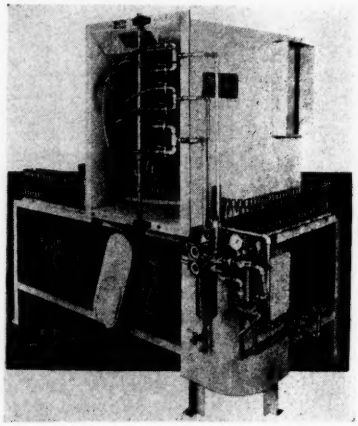
For handling long strips of sheet metal, a heavy duty hand-operated hydraulic truck has been introduced by the LYON-Raymond Corporation, New York City, designed to keep the sheet metal at a convenient height for the operator while he is feeding the sheets to a punch press. The truck is equipped with a two-speed, hand-operated hydraulic pump, and a towing attachment mounted on the front wheels, so that it may be moved conveniently with the aid of an industrial power tractor. It may be locked in position when the operator is feeding the sheets to the press. Truck illustrated is



of toggle lever type, 10,000 pounds capacity, with table 36 inches wide by 120 inches long, lowered height 18 inches, elevated height 36 inches, elevation 18 inches, and fifth wheel steer. It can be supplied in other capacities and with motor driven pump instead of hydraulic hand pump.

Automatic Shell Painting Machines

A recent development in shell painting machines is announced by the DeVilbiss Company, Toledo, Ohio. It is built around a "chain-on-edge," variable speed conveyor to allow for a ten minute drying time at a production rate of 1,000 shells per hour. Spindles for supporting the shell are of the removable type and are equipped with flat surface pulleys for rotation inside the spray booth. Spindle rotation is by means of a separate variable speed drive.



Spray guns are of the automatic air piston type with adjustable cam operated spray control. The ten-gallon pressure feed paint tank is equipped with an air motor driven agitator. Spray booth, exhaust fan, air transformer and the necessary air and fluid hose, control valves, fittings and connections complete the machine.

The unit illustrated coats the exterior of 20 mm. shells at a rate of 2,000 per hour.

Industrial News

Rugg Named Vice President of Koppers United Company

President J. T. Tierney of Koppers Company, Pittsburgh, Pa., announces that Daniel M. Rugg, vice president and general manager of the Brooklyn division, has been elected a vice president of Koppers United Company. Mr. Rugg has been associated with Koppers Company since 1925 and has been a vice president since 1930. The Brooklyn division handles sales and distribution of Koppers coke in Brooklyn, N. Y., and vicinity.

United States Navy "E" Award for Norton Company

A special miniature of "The Norton Spirit," employees' house organ of Norton Company, Worcester, Mass., producers of abrasives, etc., tells the story of the United States Navy "E" Award for Norton Achievement, the exercises being held at the Norton Field House on March 23. This award is a symbol of efficiency, excellence and achievement, and is the highest service award the Navy bestows.

To Victory With Textiles

Forming a part of an "On to Victory" program a course on "On to Victory With Textiles" has been instituted in the Parkersburg, West Virginia, area by Fred Decker, of the research laboratory of the American Viscose Corporation's Parkersburg plant. The course has been developed to teach retailers and salespeople the latest developments in the use of fibers necessitated by wartime conditions, emphasizing the manufacturing processes, characteristics and uses of fabrics made from the various textile fibers, etc.

New Holland Buys Stover Farm Machinery Rights

The New Holland Machine Co., New Holland, Pa., has purchased the manufacturing and selling rights for the Stover limestone pulverizer, tractor saw attachments, saw frames, drag saws, mandrel sets, tank heaters, hog troughs, and ensilage cutters, all formerly manufactured by the Stover Manufacturing & Engine Co., Freeport, Ill.

Expanding Dynamite Cartridge

Hercules Powder Company, Wilmington, Del., announces a new dynamite cartridge which will expand under tamping to fill the bore hole and concentrate the charge. Known as the "Tamptite," the new cartridge is said to eliminate the necessity of slitting cartridges, and permits concentration of a charge within the hole with little or no spillage of powder. Available to various brands and grades up to 1¾ inches in diameter.

Mechanized Units Speed Shipping Room Operations

To save time in preparing hot asphalt for shipping, one manufacturer mechanized the entire process with special trucks and stapling equipment. Empty bags are first dropped into a sheet metal carrier on a wheeled truck. After filling 6 or 8 bags operator staples the filled bags while others are being filled. The stapling machine was made by Bostitch, Inc., East Greenwich, R. I.

Dry Fire-Extinguishing Compound

Developed specifically for extinguishing magnesium and incendiary-bomb fires, a new dry fire-extinguishing compound is announced by DuGas Engineering Corporation, Marinette, Wis. Advantages claimed are moisture-resistant, remains free-flowing even when stored for long periods, is non-abrasive, and will not react with burning magnesium.

Stops Condensation Drip

NoDrip, an improved plastic cork coating that stops dripping from sweating pipes, walls, ceilings, tanks, etc., is announced by J. W. Mortell Company, Kankakee, Ill. It may be applied with an ordinary paint brush.

Hydraulic-Release Shell Truck

Developed for the safe, quick and easy handling of large shells in munitions plants, the Lewis-Shepard Shell Truck, has been manufactured by the Lewis-Shepard Sales Corp., Watertown, Mass. The truck is equipped with a gentle-action hydraulic release check and in transporting the shell, the carriage of the truck is first lowered to a horizontal position by the operator, and when ready to unload, the carriage and shell are easily raised to a vertical position.

United States Steel 1941 Annual Report

The 1941 annual report of United States Steel Corporation, submitted to stockholders by Irving S. Olds, Chairman of the Board of Directors, discloses that direct and indirect demands for defense and lend-lease needs have reached the equivalent of more than three-fourths of the Corporation's current steel shipments. Mr. Olds states that throughout 1941 "the entire resources and facilities of United States Steel Corporation and subsidiaries have been at the call of the Government."

Rolled and finished steel during the year totaled more than 20,000,000 net tons—an all-time high. Net tons of ingots produced also established an all-time record.

Gross capital expenditures for additions and betterments to facilities aggregated about $111,000,000 in 1941, while unexpended authorizations for all purposes at the end of 1941 amounted to $185,000,000 additional.

Loss of production resulting from strikes and work stoppages during 1941 was the equivalent of 300,000 tons of steel, 5,000,000 tons of coal and 19 days of ship production.

During 1941 the Corporation disposed of the largest volume of products and services in its history and received for them the largest sum of money in its history. Employment averaged approximately 304,000 in 1941—a greater number of employes than in any previous year, representing an increase of 51 per cent since 1938. The total payroll during the same period increased 113 per cent. Annual payrolls rose to a new high of $601,117,053 in 1941, compared with the total of $438,621,292 in 1940 and with $420,072,851 in 1929.

Net income was $116,171,075, compared with $102,211,282 in 1940. The dollar volume of sales in 1941—$1.6 billion, was the highest in U. S. Steel's history, but, reflecting the effect of unchanged scheduled prices of principal products in the face of increased tax, wage and material costs, the net income for 1941 was 41 per cent less than for 1929. Total tax provisions for 1941 amounted to $191,000,000, or 124 per cent more than in 1940.

Edward T. Fishwick

Edward T. Fishwick, vice president and director of the Worthington Pump and Machinery Corporation, Harrison, N. J., died on March 15 at his home in Glen Ridge, N. J., after a service of 49 years with the Worthington organization, having started with the corporation at its Cincinnati Works. He was senior vice-president and was also president and director of the Worthington-Gamon Meter Company of Newark, N. J.; director of the Glen Ridge Trust Company, and of the New Jersey State Chamber of Commerce, and was formerly head of the Diesel Engine Manufacturers Association.

Tube Turns Appointments

Connected with Tube Turns, Louisville, Ky., since 1929, W. E. (Bill) Geiser has been appointed District Manager of the Philadelphia office in Broad Street Station Building.

The company has opened a branch office in the Commerce Building, Houston, Tex. W. B. Whentoff, formerly in charge of the Tube Turns office in Tulsa, Okla., is manager.

Cochrane Corporation Appointments

Power Specialty Company, Houston, Tex., has been appointed by the Cochrane Corporation, Philadelphia, Pa., as representative in southeastern Texas. In addition to handling the Cochrane meter line, the Power Specialty Company handles the products of Centrifix Corporation, Erie City Iron Works, Hays Corporation, J. E. Lonergan Company, and the Lummus Company.

V. L. Sanderson, Philadelphia, and his associate, William Bradford, Wilmington, Del., have been appointed sales representatives in eastern Pennsylvania, southern New Jersey, Delaware, and Maryland for the new Cochrane-Becker high pressure condensate return system.

Tubular Products, Incorporated

To increase production of seamless tubing of alloy and stainless steels, essential to the war effort, United States Steel Corporation announces a new subsidiary—Tubular Products, Incorporated. Benjamin F. Harris, President of National Tube Company, will be president of the new company, which has acquired the plant of National Tube Company at Gary, Ind. Other officers include E. N. Sanders, Vice President; A. Gordon Patterson, Secretary and Treasurer; E. M. Moore, Comptroller; R. W. Wire, Manager of Sales; L. W. Mason, Manager of Purchases, all formerly of National Tube Company.

Trade Literature

LANLY CORE OVENS—
Catalog—illustrating Lanly Core Ovens, dryers and other equipment.
The Lanly Company, 750 Prospect Avenue, Cleveland, Ohio.

VALVES FOR FIRE PROTECTION—
Bulletin E-52B—illustrating quick-operating valves for fire protection; explains how various types of Everlasting Valves are designed, either for emergency shut-off or diversion of the flow of inflammable liquids, or concentration of water to sprinkler deluge or water curtain systems.
Everlasting Valve Company, 49 Fisk Street, Jersey City, N. J.

BRASS AND BRONZE CASTINGS—
Booklet—"Practical Data on Brass and Bronze Castings," designed as a handy, compact reference work of standard specifications, applications and other related information.
Hammond Brass Works, Hammond, Ind.

FLUORESCENT LIGHTING FIXTURES—
Folder—illustrating and describing the De Luxe line of fluorescent lighting fixtures for "more, cooler and better light."
W. H. Long Company, 423-27 N. Clark St., Chicago, Ill.

NORTON GRINDING MACHINES AND ABRASIVES—
Folder—illustrating and describing Norton grinding machines—the Norton 6-inch and 10-inch Type C Cylindrical Grinders—plunge cut and traverse jobs may be handled in the same unit.
House Organ—"Grits and Grinds," devoted "to the interests of better grinding, lapping and surface finishing;" published monthly; February edition presents as a leading article, one by E. T. Larson, of the Norton Company Sales Engineering Department, on "Truing and Dressing Grinding Wheels."
Norton Company, Worcester, Mass.

Rand McNally Bankers Directory—The first 1942 edition (The Blue Book), presents interesting facts by a comparison of consolidated statements of all American banks.

The variation in the number of banks is interesting, indicating an increase in the number of branches and a decrease in the number of head offices. There were seven more branches of national banks at the beginning of 1942 than there were as of June 30, 1941, and there are 16 more branches of state banks. However, there are 13 fewer branches of other banks, so that there is a net gain in the number of branches of 10. There is a net loss of banking offices of 70 including 16 national banks, 30 state banks, 5 private banks, and 19 others.

Government securities now held by the banks total $25,440,712,000, a larger total than is shown in the table for any year. Other securities have gained slightly in the last six months.

BYERS STEEL AND IRON PRODUCTS—
1942 General Catalog—devoted to Byers Products, including wrought iron, tubular and hot rolled products; steel tubular products, and alloy steels; and presents a list of individual publications discussing many uses for these products.
A. M. Byers Company, Pittsburgh, Pa.

American Bank Reporter—This quarterly publication, March, 1942, presents an alphabetical list of all banks in the United States and Canada, including national, state, savings and private banks. Gives names of officers, correspondents in principal cities, with the charter number of each national bank, capital, loans, deposits, undivided profits, surplus, securities and cash on hand and due from banks, and the principal loan, trust and investment companies. There are also a list of reliable attorneys and a selected list of banking institutions in principal cities of foreign countries. An explanatory index facilitates use. Published by The Charles Steurer Press, Inc., 420 East 149th St., New York, N. Y.

"DUSTUBE" DUST COLLECTORS—
Catalog No. 72—58 pages, revised, devoted to "Dustube" Dust Collectors, knock-down and assembled types; a handy manual to serve plant engineers and officials in the selection of proper control equipment for specific dust problems; complete engineering manual section is included.
American Foundry Equipment Company, 555 S. Byrkit Street, Mishawaka, Ind.

FOR CRUSHING METAL TURNINGS—
Bulletin 747—illustrating the Jeffrey metal turnings crusher.
The Jeffrey Manufacturing Co., Columbus, Ohio.

PUMPS—
General Catalog — illustrating Tuthill pumps.
Tuthill Pump Company, 939 East Ninety-Fifth St., Chicago, Ill.

"Arbitration in Action"—This volume is by Frances Keller, Executive Vice President of the American Arbitration Association, and is from the press of Harper & Brothers, Publishers, New York and London. It is priced at $3.50.

Arbitration in Action, a Code for Civil, Commercial and Industrial Arbitrations, was written in response to "an overwhelming number of inquiries on the subject of arbitration, by men, organizations, companies and unions who want to know how, when and where to arbitrate disputes," according to the author's preface. They ask for the technique of arbitration and for practical suggestions as to how they personally can use it to their own advantage and to the advantage of a country now faced with tremendous problems of war production. The book offers a short cut to this information, setting forth principles and standards of law and practice and a way of proceeding under them.

Priorities

(*Continued from page 44*)

Nickel—M-6-a amended and extended changes definitions.

Office Machinery—L-54-a curtails production and revokes L-54. L-54-b restricts production and L-54-b amend. No. 1 modifies restrictions. Requires forms PD-1A, PD-3, PD-3A, L-54-a amend No. 1 applies restrictions to wide-carriage typewriters.

Office Supplies—L-73 curtails use of certain materials in manufacture of metal supplies.

Outboard Motors and Parts — L-80 halts production except for war orders.

Palm Oil—M-50 conserves supply and directs distribution.

Petroleum—P-98 amended and extended for priority ratings to supplies and equipment needed in production, transport, refining and marketing. M-68-c amended restricts use of materials in marketing: requires form PD-215.

Plumbing and Heating—L-42 sched. No. 3 eliminates tri-cocks from low-pressure heating boilers after June 1, 1942. L-42 sched. No. 4 contains further requirements for producers of cast iron soil pipes and fittings. L-42 sched. No. 5 contains simplifications of plumbing fixture fittings. L-42 sched. No. 6 affects cast iron tubular radiators. L-42 sched. No. 7 prohibits copper or copper alloy in certain items.

Power (Electric)—L-46 amend. No. 1 changes base period for limiting increases in deliveries.

Printing Ink—M-53 limits amount of scarce materials to be used in manufacturing: form PD-344 required. P-94 assigns A-5 rating to 50% of average monthly use in 1941 of inorganic colors and pigments restricted by M-53 to 70% use: requires form PD-345.

Production Requirements Plan — Amend. to P-90 permits use of ratings assigned by other certificates to obtain material not usually in stock.

Projects (Defense)—P-19-e amend. No. 1 eliminates extension of ratings granted road projects to purchase of road building machinery. Requires forms PD-1A and PD-81.

Radios and Phonographs — L-44-a further restricts and finally prohibits production.

Ropeseed Oil—M-77 conserves supply and directs distribution. Use form PD-39.

Razors and Blades—L-72 curtails production.

Refrigerators — L-7-a amend. No. 1 provides further quotas and restrictions. L-5-c amend No. 3 excludes kerosene refrigerators from order halting production after April 30. L-5-b amend. No. 2 permits dealers to sell entire stock. L-5-c amend. No. 2 permits any company under RFC Act to acquisition strategic materials from refrigerator makers. L-7-b restricts use of steel in non-mechanical refrigerators.

Research Work—P-24 amend No. 1 and exten. No. 2 assigns A-1-a for material used in aircraft research and extends order till June 30, 1942.

Rhodium—M-95 prohibits use on jewelry. Forms PD-295, 296.

Rough Diamonds—M-109 provides for inventory. Requires forms PD-376, 377, 387.

Rubber — L-61 suspends production and delivery of tire retreading and recapping equipment except on preference orders: requires form PD-1A. M-15-b amend. No. 6 restricts use and sale of scrap and reclaimed rubber. M-15-b-1 amend. No. 1 and 2 adds two new specification lists. M-15-b amend. No. 7 eliminates crude rubber or latex from use in 20 items and restricts its use in 50 other items. M-124 is to conserve rubber yarn or elastic thread.

Springs and Mattresses—L-49 curtails use of iron and steel in manufacturing. Use forms PD-356 and PD-357.

Steel and Iron—M-21-d amend. No. 1 affects corrosion and heat resistant chrome steel. M-17 amend. No. 2 and exten. No. 2 provides complete allocation of pig iron supplies. Requires forms PD-69, 70, 71 and 71d.

Sugar—M-55 interpret. No. 1 affects direct-consumption. Amend. No. 2 to M-55 as amended and extended permits refiners to fill requirements of beekeepers and USO without charge to quotas. M-55-c provides restrictions on primary distributors. M-55-d defines zones. M-55-e sets quotas. M-55-4 sets quotas for raw or invert direct-consumption sugar. M-98-a amended raises raw sugar for period Jan. 1 to Sept. 30, 1942.

Sulphite Pulp—M-52 extended to May 1 under exten. No. 1.

Tanks—P-25-a through P-25-e and P-26-a through P-26-e extended to May 31, 1942.

Tea—M-111 restricts deliveries and receipts. M-111-a sets quotas. Use form PD-374.

Tin—M-81 interpret. No. 1 affects tinplate and terneplate. M-43-a requires all government agencies to conform to list of special restrictions: form PD-229 required. M-115 eliminates use of collapsible tin, tin-coated and alloy tubes for foods, cosmetics and most toilet preparations.

Tools—P-11-a exten. No. 2 to June 30, 1942 affects metal working equipment. E-2-a exten. No. 2 extends cutting tool order indefinitely. E-4 controls sale and delivery of second hand machine tools. E-1-A amend. No. 1 affects production and delivery of machine tools, gages and chucks. P-77 under exten. No. 2 is extended to May 1, 1942.

Toys and Games—L-81 halts use of metal, plastic and other critical materials in manufacturing after June 30. Trucks—P-40 exten. No. 2 affecting industrial lift trucks extended to May 10, 1942.

Tung Oil—M-57 amend. No. 2 directs distribution to conserve supply.

Turbines — M-76 affects production and delivery of land turbines.

Typewriters—L-54 amend. No. 1 permits transfer and loans for specific needs. L-54 suppl. dir. No. 1d further delegates authority to OPA for rationing. L-54-a curtails production to meet only urgent needs: use form PD-365.

Utilities—P-46 amended affects materials needed for maintenance and repairs.

Vacuum Cleaners—L-18-b halts production after April 30.

Vehicles—P-35 extended to May 31, 1942 for materials used to produce armored half trucks: requires form PD-81.

Wood Pulp—M-93 places wood pulp industry under allocation system: requires forms PD-290, 291 and 292. M-93 amend. No. 1 modifies inventory control.

Wool—M-73 amend. No. 1 assigns A-10 to officers uniforms. M-73 as amended and extended curtails use in worsteds. M-73 amend. No. 3 affects fabrics for officers uniforms. M-73 amend. No. 2 sets quotas for razor staple fiber producers. Amend. No. 1 to M-73 as amend. and extend. sets quotas for second quarter. Amend. No. 2 to M-73 as amend. and extend. makes provisions for blanket manufacturers. M-87 affects O. D. wool clips, rags and wastes. M-94 amend No. 1 changes "Bradford Count' of shearlings.

Zinc—M-11 as extended further extended to May 31, 1942. M-11-j sets pool for April.

New Industrial Plants and Expansions in the South

(*Continued from page 41*)

LOUISIANA

Expansion—War Department authorized expansion of manufacturing plant in Louisiana, at cost in excess of $5,000,000; work under supervision of Vicksburg, Miss., office of Corps of Engineers.

BATON ROUGE—plant—Aluminum Company of America, Pittsburgh, Pa., construct and operate alumina plant; cost $15,000,000.

BOGALUSA—milk plant—Jesse H. Cutrer and J. P. Earles, Jr., establish milk pasteurization plant; construct building; install new equipment.

LAKE CHARLES—plant—Defense Plant Corp., at request of War Dept. authorized erection of magnesium plant by Mathieson Alkali Works, Inc., new York; annual capacity 36,000,000 lbs.; cost $16,000,000.

NEW IBERIA — addition — Gulf Public Service Co., L. L. Ferree, Gen. Mgr. plans an additional 1,000 kw. unit at power plant and water line extension.

NEW ORLEANS — shipyard — Weil & Moses, 427 S. Peters St., will handle design and construction of proposed shipyard for Higgins Industries, Inc., which has contract for 200 emergency cargo vessels; estimated cost $30,000,000; will have 32 traveling ways and space for 8 additional boats, 23 miles of railroad tracts and 15,000 cu. yds. of dredging; power plant to have a 35,000 kw. capacity.

NEW ORLEANS—fueling system—J. G. White Engineering Corp., Hibernia Bank Bldg., let contract to Chris Larsen Co., Maritime Bldg., New Orleans, for addition to fueling system at Louisiana Shipyard Plant on Industrial Canal; will receive bids April 3 for construction of following buildings in connection with plant; warehouse; building for storing hatch covers; storage building for asbestos covering and cement; sawdust storage bin; dead men for transfer tracks; riser at entrance to boiler room of main office; lunch rooms; portable store rooms; following are prospective estimators: John Riess, Carondelet Bldg.; Chris. Larsen Co., Maritime Bldg.; Pittman Brothers Construction Co., 2800 N. Galvez St.; George J. Glover Co., Inc., Whitney Bank Bldg.; Boh Bros. Construction Co., 2400 Cypress St.; Lionel F. Favret, 937 Gravier St.; Favrot Roofing & Supply Co., 2530 Perdido St.

MARYLAND

Expansion—War Department authorized construction of manufacturing plant in Maryland at cost in excess of $5,000,000; construction under supervision of Washington, D. C. Office of Corps of Engineers.

MISSISSIPPI

GREENVILLE—plant—J. H. Kent estab-

(*Continued on page 60*)

A Business That Has Nothing To Sell

(*Continued from page* 30)

tailed instruction of that kind serves the interests of the owners of the products; it helps to designate the business as one whose recommendations are unselfish, trustworthy and therefore of value; and it influences the owners of the products to remember them and their maker favorably and longer.

Such an effort may also include frequent explanations to the public of the circumstances that force the business to restrict its services; it may include explanations of its procedure for serving its trade equitably to the extent that it can; it may include frequent reminders of the merits of the company's products. It may and should include every means for acquiring respectful friendships with those whose regard and patronage will be sorely needed in the period of readjustment.

Mechanically, an effort to gain a merited public regard for a business institution is in no way different from an effort to gain regard for products. It is a selling job, and it requires merely that sales thinking and promotional planning be redirected to feature institutional character rather than goods.

It is *the* selling job that must now be undertaken by businesses that possess sufficient institutional character to justify an attempt to attain a permanent status.

South's New $20,000,000 Pipeline Placed in Operation

(*Continued from page* 29)

the following classes of coatings were applied depending upon whether the indicated rate was high or relatively low.

Class A

The Somastic coating applied to the pipe at a central plant and including the coating of pipe adjacent to and over the welds in the field before the pipe is lowered.

Class B

Class B coating consists of a cold primer paint (Ennjay Primer) followed by one hot coat of mineral-filled asphalt enamel, followed by an asphalt-impregnated asbestos felt or other shield material, spirally wrapped on the line, followed by a second hot coat of mineral-filled asphalt enamel, followed by an asphalt-impregnated asbestos felt or other shield material, spirally wrapped on the line.

Class C

Class C coating consists of a cold primer paint (Ennjay Primer) followed by one hot coat of mineral-filled asphalt enamel, followed by an asphalt-impregnated asbestos felt or other shield material, spirally wrapped on the line.

The Plantation Pipe Line Company is owned by the Standard Oil Company (N.J.), the Shell Union Oil Corporation, and the Standard Oil Company (Ky.). Officers are C. R. Younts, president; F. E. Waterfield, Jr., and Norman J. McGaw, vice presidents; David F. Cocks, secretary-treasurer; S. V. Kane, assistant secretary-treasurer, and William A. Dougherty, assistant secretary. Directors are W. R. Finney and R. T. Haslam of the Standard Oil Company of New Jersey, W. E. Smith, president of Standard Oil (Kentucky), and Messrs. McGaw and Younts. Plantation's home office is in Atlanta.

New Industrial Plants and Expansions in the South

(*Continued from page* 56)

lish meat processing plant in South Greenville.

MISSOURI

ST. LOUIS—factory—Bank Building & Equipment Corp. of America, Ninth & Sidney Sts. leased building 7500 S. Broadway; expend $40,000 in remodeling for manufacture of demountable prefabricated houses; install heating plant, concrete floors and equipment for woodworking manufacturing.

ST. LOUIS—plant—Ralston Purina Co., Inc., Eighth and Gratiot Sts., acquired 3-story brick building, N. Union Blvd. and Brown Ave.; will use for manufacture of sanitation products.

ST. LOUIS—addition—Scullin Steel Co., 6700 Manchester Ave., plans expansion; expend $11,443,000 for land, building, purchase of machinery and equipment.

NORTH CAROLINA

BURLINGTON — addition — Fairchild Corp., Jamaica, New York, receives bids March 25 for addition to plant; Albert Kahn, Inc., Archt., Detroit, Mich.

OKLAHOMA

Plant—War Department authorized addition to manufacturing plant at a cost in excess of $5,000,000; construction supervised by U. S. Engineer Office, Tulsa.

OKLAHOMA CITY—plant—City and Oklahoma County will vote, probably in March or April on $2,250,000 bonds for plane assembly plant and other military establishments.

WEWOKA—canning plant—Johnson and Steele, Springdale, Ark., establish tomato canning plant.

SOUTH CAROLINA

SPARTANBURG — duck mill — Warrior Duck Mills, organized by W. P. Ligon and associates to establish plant, investment of $75,000; manufacture duck cloth.

TENNESSEE

Plant—War Department authorized construction of expansion of a manufacturing plant in Tennessee, at cost in excess of $5,000,000; work under supervision of Office of Corps of Engineers, Atlanta, Ga.

TEXAS

Pine line—Border Pipe Line Co., Houston, applied to Federal Power Commission for a certificate of convenience and necessity covering company's proposed pipe line from San Salvador field in Hidalgo County, Tex., to a point on international boundary approximately 40 miles northwest of Laredo, at which point natural gas will be sold to American Smelting & Refining Co.

Expansion—Defense Plant Corporation provide funds for expansion of refinery; cost $10,000,000; install additional facilities for recovery of iso-butane and normal butane; fireproof; Gulf Plains Corp., Jones Bldg., Corpus Christi and Chicago Corp., owners.

Plant—Defense Plant Corp., RFC subsidiary, at request of War Dept. authorized an increase in its commitment with International Agricultural Corp. for additional facilities for plants to be located at Austin, Tex., and Carlsbad, New Mexico, from $12,317,000 to $12,601,347; will be used for production of metallic magnesium; will be owned by Defense Plant Corp. and operated for its account.

DAINGERFIELD — blast plant — Southwestern Iron, Steel & Coke Co., John W. Carpenter, Dallas, establish plant with initial cost of $14,850,000; contain 1200 ton blast furnace, 60 modern coke ovens, water supply system, coal mining lands, ore beneficiation plant and power plant, etc.

HOUSTON—laboratory—MacKie & Kamrath, 2017 W. Gray St., preparing plans for proposed $50,000 laboratory for Walter Ruska & Co., Inc., at 2332 Bellaire Blvd.; 1 and 2-story; 50 x 126 ft.; masonry.

HOUSTON—plant—Alfred C. Finn, Archt., Bankers Mortgage Bldg., receives bids March 25 for construction of a 1 and 2-story masonry and frame inhibitor plant for D. W. Haering & Co., Inc., 205 W. Wacker Drive, Chicago, Ill.; project will include a 2-story main manufacturing plant, 91x17 ft.; an attached 1-story office building; 2 frame sheds, 82x16 ft.; loading dock on railroad siding, 96x8 ft.; 2 additional docks with 16-foot ramps and concrete foundations for 6 steel tanks, 15 ft. high and 4½ ft. in diameter; cost $25,000; Burnell, Sanche and F. E. Davidson, Jr., Archts., Chicago, Ill.

HOUSTON—ink plant—General Printing Ink Corp., 100 Sixth Ave., New York, acquired 5-acre tract on Homestead Rd. in Burchfield industrial district for erection of $75,000 plant; David Harvey, Mech. Engr.

PASADENA — dock, etc. — Brown Shipbuilding Co., Houston, plans constructing launching ways, dock and dredging Greens Bayou; each of the 2 ways, 250 ft. long, all of docks to be built shoreward of existing line.

PHARR — packing plant — Mack-Tex Produce Co., M. G. McClure and D. McLendon, erect packing plant, 43 State St.; 1 and 2-stories; frame and sheet metal; concrete floor slabs.

WEST VIRGINIA

BENWOOD—expansion—War Production Board approved an $18,000,000 expansion program by Wheeling Steel Corp. to Steubenville, O., works and at the Benwood plant, the replacement of 2 cupolas and rebuilding of 4 stands of present skelp mill; additional coal mining machinery and 10 river coal barges also included in program.

HUNTINGTON — optical plant — Zenith Optical Co., Dr. L. M. Polan, having plans prepared by Meanor & Handloser, Archts., Miller-Ritter Bldg. for improvements to building Second Ave. and Eighth St.; remodel for manufacture of optical goods.

HUNTINGTON — factory — Huntington

(*Continued on page* 66)

The South at the Crossroads

(*Continued from page 25*)

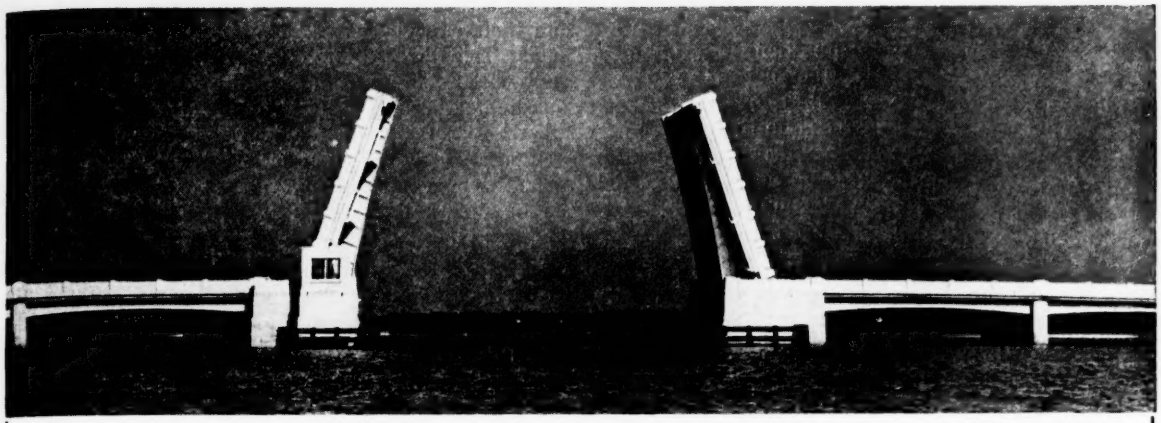
cellulose and other things, as well as for textile manufacturing. Corn, sweet potatoes, sugar cane, tobacco —in fact, one could go on almost indefinitely mentioning the agricultural products that, like minerals, through the magic of chemistry, provide better things for better living. Yet chemists tell us that probably only a bare start has been made. That being so, and there would seem to be little doubt about it, what are we in the South going to contribute to its fulfillment?

First of all we have got to be in agreement, and I think we are, that the South has got technological problems which it is desirable, if not essential, should be solved in the South by southerners for numerous reasons, many of which are obvious. By southern technological problems I mean such as those relating to sugar cane, peanuts, cotton, tung, pine, bauxite, sulphur, spodumene and countless others. These problems are not simple, they are complex and involve innumerable factors.

Assuming we already possess the *desire* to solve these problems there still remain other equally important prerequisites — laboratory equipment, libraries, and personnel. Equipment is usually obtainable if the necessary money is available. The same is true to a limited extent of libraries—limited because some books are virtually unobtainable regardless as to the money. When it comes to personnel however, there is an entirely different story for it involves not only the individual but that individual's training and the training or education is possibly the most expensive and difficult item of all. Let us assume what I honestly feel to be true, i.e., that if we possess the will, we can eventually find the necessary money and/or equipment and books. But what of education, the burden of which would appear to fall on the institutions of higher learning ?

With all due respect for the efforts and accomplishments of individual establishments, it must be admitted that the majority of southern universities are exceedingly poor, not just in money, but in the field of technological education. I say this not in a critical sense but as a matter of fact. As stated previously, the South still is primarily an agricultural region insofar as the bulk of the population is concerned, consequently it is understandable that in the so-called present-day industrial regions, emphasis should have been placed on technological progress in the latter's universities during the time that the industrial era was dawning, and further, that they should have been kept up to date since then. Then too, because many of the northern colleges and universities are privately endowed, their progression has been made possible by philanthropists who acquired their wealth in industry and, in consequence, have directed the main course of the university's endeavors to fall in this direction. The result is that these institutions of the North obtained a great start and they have built up a reputation that is national—not only on the basis of technological education but on the basis of equipment, and equipment for this kind of educa-

(*Continued on page 64*)



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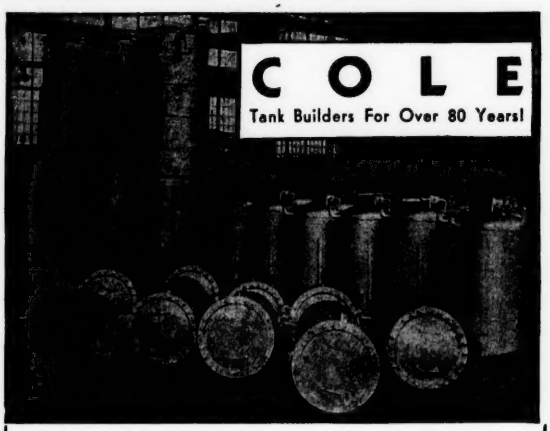

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General Steel Plate Construction designed for your requirements.

Lancaster Iron Works Inc.

Lancaster, Pa.

The South at the Crossroads

(*Continued from page 62*)

tion is tremendously expensive, if it is going to be done properly. And if it is not going to be done properly in the South the question may well be asked as to whether it is worth doing at all.

The South in years past, has had no outstanding technological college comparable with some that might be mentioned in the North; therefore southern students interested in this form of education have been compelled to go North. Now they go north because of the prestige of these colleges, if for no other reason.

At the same time, southern problems are being ignored, or almost so, for these southern students that go north almost without exception are unable to devote their efforts to southern problems. They are trained by northerners with northern equipment to handle northern problems and northern raw materials for northern users who often have little or no interest or appreciation of the number and importance of technological problems waiting to be solved in the South. When these students graduate, they are frequently offered a position in a northern concern and another migrant from the South must be recorded. I could name many such instances and probably most of you could too.

It is no use blaming these students, the South, or southern universities. When northern colleges were establishing themselves in the technological field, the South did not foresee the necessity for technological education in its own area. Besides, the South during these formative years was far from being wealthy. If it still is far from being wealthy, then the question arises, and it is a very pertinent question, as to whether the South can afford to go into the question of expensive technological education. At the same time, one may reverse the question and ask if the South can afford *not* to go into technological education.

As I have said already, today as never before, industry is dependent upon a variety and class of raw materials that has not been used in such manner heretofore. They will be used even more in the future probably than they are today and the South possesses an extremely large quantity of them, especially those used for or through the medium of chemical conver-

(*Continued on page 66*)

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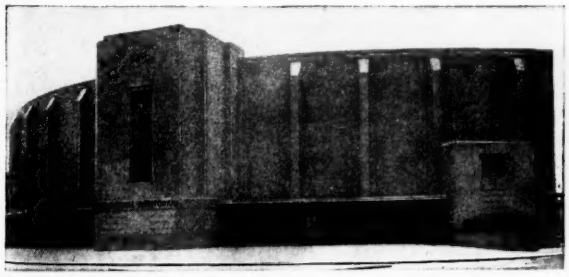

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The South at the Crossroads

(*Continued from page* 64)

sion. Inevitably such a situation and development is bound to bring enormous and large numbers of problems and I *know* that many of them are unique to the territory in which they arise and about which we are talking. The one certain thing is that these problems are to be solved and they *will be solved.* Where? and by Whom? are the important questions for they form the crossroads the South is fast approaching if it has not already arrived there. If the South undertakes this task of technological education and research, the road will be uphill and the going will be hard, but the result will be well worth the effort for there can and must be no doubt of the outcome. If the South declines or procrastinates too long, I would suggest that possibly this region will become merely the laborer or producer of raw materials for the North, for the North will be obliged to shoulder the job even though it may be illogical and uneconomic, from some points of view, for these problems to be solved in northern laboratories.

For years, manufacturers interested in the South have seen and pondered these two important questions as to where and by whom these problems will be solved. They have talked to me about them. You will find those firms willing and ready to cooperate. They *know* the ideal would be to have these problems handled in the South by southerners. But you must not expect them to take the initiative or should I say *our* initiative?

All of what I have said, of course, is primarily from the point of view of industrial research. Yet it has a very direct bearing upon scientific research in general and technological education in particular because to do the former necessarily involves the latter.

There is much talk these days and not a little speculation as to the condition of things when this war is over. Some there are who believe that private enterprise as such will cease to exist. Others, less pessimistic, envision governmental taxation and regulatory methods so stringent that private enterprise will be unable to function as in the past. Just what *will* prevail of course, none of us can tell. Your guess is probably as good as mine. But there is one thing I *do know* and that is—the need for research in the South will be as great or greater than ever before and *somehow* the means and place of its accomplishment will be found—either in the North or in the South—depending largely, if not entirely, upon what we in the South *do* between now and when that time comes.

Purposely I have refrained from attempting to offer a solution, or even to suggest a program. Nor was it my purpose to provoke an argument. Rather have I tried to present a point of view—one to which this Association will, I hope, give much thought and still greater action wherein it will surely be accorded the unstinted help and hospitality for which the South is so justifiably famous.

ACID-PROOF PIPE AND FITTINGS—Bulletin No. 550—illustrating and describing acid-proof piping and fittings. **The United States Stoneware Company,** 60 E. 42nd St., New York, N. Y.

New Industrial Plants and Expansions in the South

(*Continued from page* 60)

Industrial Corp., B. C. McGinnis, chairman of building committee, will soon call for bids for airplane equipment plant on Washington St. on 3½ acre site; will be operated by Huntington Precision Corp. Eastern branch of Adel Precision Corp., Burbank, Calif.; Robert S. Kilgore, 301 8th St., W., Huntington, will supervise construction.

SOUTH

Curtiss-Wright Corp., G. J. Brandewiede, St. Louis, Mo., will erect an air craft manufacturing plant, almost entirely of nonstrategic materials; a percentage of its structure will be sub-contracted.

Subsidiary companies of Commonwealth & Southern Corp., New York, Justin R. Whiting, Pres., authorized a $37,800,000 construction program for 1942; will include $7,000,000 in Alabama, 100,000 kw.; $7,600,000 in Georgia, 80,000 kw.; $1,400,000 in the Gulf (Florida) area, 20,000 kw.; $870,000 in Mississippi, 20,000 kw.; $781,000 in South Carolina.

Pacific Fruit Express Co., 165 Broadway, New York, will expend approximately $21,000,000 for new cars and for rebuilding and heavy repairs to equipment in 1942 and 1943; order for 2,000 new cars will be placed shortly; in connection with new construction program company will completely rebuild 2,500 of its cars during 1942 and 1943, will be provided with new bodies; make heavy repairs to 3,000 additional cars during same period; equipment to be constructed with steel frames, convertible bunkers, etc.; Southern Pacific and Union Pacific joint owners of company.

War Department will construct a $30,000,000 plant in East Central section for manufacture of explosives; has site of 8,000 acres.

War Production Board will construct 6 magnesium production plants; one of which will be constructed in the Southwest: following companies will design and erect the plants: Union Carbide & Carbon Corp., American Metals Co.; National Lead Co.; Ford Motor Co.; Permanente Metals Corp., and New England Lime Co.

Sub-Contractors Wanting War Work

(*Continued from page* 38)

welding torches; double head Valley emery wheel grinder.

Drill presses: 21′ Champion drill press—motor driven; 18″ W. & J. Barnes drill press—motor driven.

Air equipment: Devilbiss compressor and tank; two Devilbiss paint guns; ¾″ air riveting hammer; four 2-ton overhead hoists; small drills; hand tools, etc.

War Contracts in the South

(*Continued from page 46*)

000, $137,473.00—tent, in the grey, 12.10 oz., 63", 440,000, $249,040.00—tent, twill, 11.6 oz., 31", 300,000, $73,680.00—tent, in the grey, 12.10 oz., 31½", 2,412,000, $663,300.00; Crawford Austin Mfg. Co., Waco, Texas, tent, in the grey, 9.68 oz., 31½", 700,000, $155,267.00—tent, in the grey, 12.10 oz., 31½", 1,000,000, $277,-260.00; Louisville Textiles, Inc., Louisville, Ky., tent, in the grey, 9.85 oz., 61", 43,875, $23,363.44; The Beaumont Mfg. Co., Spartanburg, S. C., tent, in the grey, 12.29 oz., 30", 500,000, $201,900.00; Columbus Mfg. Co., Columbus, Ga., tent, o. d., 7.9 oz., 33", 450,000, $201,240.00; Columbus Mfg. Co., Columbus, Ga., tent, twill, 7.9 oz., 33", 800,000, $226,080.

MANUFACTURE OF TENTS: J. W. Hurst & Son Awning, Inc., Norfolk, Va., wall, with Fly, without pins and poles, large, 3,500, $34,125.00; Norfolk Tent & Awning Supply Co., Inc., Norfolk, Va., wall, large, with Fly, without pins and poles, 3,500, $34,125.00; Old Dominion Mfg. Co., Norfolk, Va., wall, large, with fly, without pins and poles, 3,500, $34,-125.00.

THREAD: Dean & Sherk Co., Inc., Lawrenceburg, Ky., cotton, machine, o. d., 10/3 3 ply, 10,000 lbs., $10,800.00—cotton, machine, o. d., No. 24, 4 ply, 4,000 spls. of 1 lb. ea., $5,520.00.

BARRACK BAGS: Benjamin T. Crump Co., Inc., Richmond, Va., 100,-000, $61,500.00; Southern Athletic Co., Inc., Knoxville, Tenn., 250,000, $158,-016.83; Siceloff Mfg. Co., Inc., Lexington, North Carolina, 50,000, $32,000.00; Blue Buckle Overall Co., Inc., Lynchburg, Va., 50,000, $32,500.00; Clifton Mfg. Co., Waco, Texas, 375,000, $243,-750.00.

PILLOWS: Kaw Valley Cotton Mills, Kansas, Missouri, feather, chicken prime, 20,000, $14,850.00; Louisville Bedding Co., Inc., Louisville, Ky., feather, chicken prime, 50,000, $35,-000.00; Friedman Mfg. Co., Kansas City, Missouri, feather, chicken prime, 20,000, $14,850.00; Columbus Furniture Corp., Columbia, S. C., feather, chicken prime, 20,000, $14,850.00.

COT PARTS, COTS AND TABLES: Hamon Fixture & Equipment Co., Jacksonville, Fla., tables, kitchen, 33" x 114", 1,000 ea., $24,000.00.

Protective Coating for Windows and Transparent Finish for Polished Metal

To prevent injury caused by flying glass broken by vibration, the cause of many casualties during bombing raids, a transparent protective coating for windows has been developed by Maas & Waldstein Company, makers of industrial finishes, Newark, N. J. Window glass or plate glass is thus turned into safety glass, it is declared.

A Letter That Should Improve Business

If everybody could write letters like the President of the Reeves Pulley Company, Inc., Columbus, Indiana, has written his salesmen, it would be better for business in general.

SPEED GAB is issued "by and for the salesmen of Reeves Speed Control Equipment" and the President's talk with his men is the frontispiece. It is worthy of every one's reading. Accompanying it is a catalog which shows attractive cuts of many applications of the Reeves variable speed control equipment, with horsepower and speed rating tables worked out, together with diagrams and practical information of use under varying conditions.

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Ingersoll-Rand Company, Cameron Pump Division, 11 Broadway, New York, N. Y.

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Catalog W—illustrating and describing operations, advantages, and applications of the Water-Cooled Taylor Stoker.
American Engineering Company, Philadelphia, Pa.

CHICAGO RIVET AND MACHINE PRODUCTS—
Booklet—illustrating automatic riveting machines for airplane manufacturers.
Price List No. 32—on tubular and split rivets.
Booklet—illustrating automatic rivet setters.
Catalog 105—illustrating brake liners and rivets.
Chicago Rivet & Machine Co., 9600 W. Jackson Blvd., Bellwood, Ill.

■ Machinery and Supplies

FOR SALE
SPRAY POND EQUIPMENT
Consisting of 50 H.P. Motor, 3250 G.P.M. Pump, 64 Spray Heads, complete with all piping, connections, etc.
C. P. Townsend, Abbeville, S. C.

FOR SALE
Fairbanks-Morse Diesel Engine, Model 32-E-14, Style VA, 75 H.P. Serial No. 786070.
W. C. Prince, Greenville, Fla.

FOR SALE
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40" raise to 50" swing x 26'.
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1—24"x16' South Bend.
1—24"x16' Blaisdell.
1—28"x7' Draper.
1—14"x10' Hendey Toolroom Lathe.
1—15"x6' South Bend.
1—13"x5' South Bend.
1—#2 Smurr & Kamen Turret Lathe.

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1—#3 Owen Universal, arbors, milling cutters, etc.
1—#7 Becker Plain, arbors, lot of milling cutters, etc.
1—#2 Davis Vertical Keyseating Machine.

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1—21" Juengst back geared.
1—24"x24"x6' Pease Planer.

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1—4' Mueller Plain Radial Drill Press, gear box.
1—26" Rockford Sliding head.
1—20" Barnes Upright.
1—14" floor type Sensitive.

Presses

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1—125-ton horizontal, Wheel.
1—#5 Rockford geared openback Inclinable.
1—Rhoades #3 Horning.
1—#1 Swain Openback Inclinable.
1—#C4 Ferracute Openback Inclinable.

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1—30" Bullard Vertical Turret Lathe.
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1—100 ampere Lincoln Welding Machine.
1—Bench type bending Rolls, 2" diameter x 30".
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1—General Electric 4-cylinder Compressor.
1—Filing Machine.
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Several Diestocks.
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